THE

ARCHAEOMUSICOLOGY

OF THE

ANCIENT NEAR EAST

Richard J Dumbrill

Illustrations by YUMIKO HIGANO

The Archaeomusicology of the Ancient Near East

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Foreword

One great error in the Pythagorean tradition is failing to notice its indigenous humor present and obvious in every early citation. But a deeper error lies in our expectation that harmonic theory must stem from some precise initial measurement made by somebody somewhere, and musicologists have been deeply suspicions of the monochord idea for a long time. It was not in the nature of either Sumer or later Mesopotamian thinkers to worry over much about absolute accuracy. They were more interested in symmetry, and the easiest ways of finding it. And halving is the most normal procedure for division of anything by humans. The great discovery was its reciprocal within the octave 2:1, as harmonic mean and this discovery is deified in EA/ENKI and gorgeously mythologized in Gilgamesh and Enkidu. Thus the Greek discovery of the harmonic mean descends from routine Sumerian study of its reciprocal - not from any accurate determination of musical fifths and fourths by acoustical experiment. Richard Dumbrill's elaborate documentation of early experience with harps, lyres, and pipes makes clear how the octave double would have been noticed naturally as a constant quite irrespective of whatever scales or modes or variety of pitches might have been involved.

The musicologists are right: there was no early monochord whatever except for the twang of a bow, probably very well understood because its breaking tension was a matter of life and death to the owner - he had to eat or go hungry. There was instead an ocean of experience with both wind and string instruments of all sizes. To my notion the loveliest and truest picture in Dumbrill's collection is that of an smirking ass, standing on his hind feet and leaning on a great lyre with the other animals gathered round. Dumbrill's ass is the spiritual father of Balaam's - and many an ass has proved smarter than its owner. Academic musicology, I believe, has been looking for an invention that never happened in the way expected. It was instead the result of Sumerian (or somebody else's) rigorous pursuit of symmetry - virtually the first principle of all scientific study of any kind.

I am inclined to take Dumbrill's personal experience with stringed instruments very seriously. Harmonics sound easily on our modern, vibrant string instruments. I lack the empirical experience to judge whether the 5:4 natural third can be heard easily on ancient instruments, but the fifth emerges naturally when the octave is halved, and the natural third emerges naturally when the fifth is halved. Thus it is easy to image 12-tone theory growing up naturally with the calendar, for everybody's life would be slightly easier (if less interesting) if every year had 12 months. We humans tend to take approximation with gratitude in our idealist approaches to arcane matters. But I notice that all ancient measures fit the musical scale never the heavens! (until after Plato.) I am counting on Dumbrill's careful collation of the instrumentation together with current understanding of Mesopotamian cultural constants to help the seminal musicological studies of Kilmer, Crocker and Brown in 1976 overturn thousands of years of severe misunderstanding owed to our over-dependence on chauvinist Greek literary sources.

There may be some bloody academic fall-out, so I expect, as linguists slowly learn how deceived they have been by their classical education. British clergy of the 18th century, for instance, were better versed in Greek musicology than are most modern linguists - but without realizing how unmusical the Platonic tradition had become already in the time of Proclus. Boethius must have understood far more than he dared to publish, for almost nobody could understand even the old Nicomachus arithmetic, also drastically simplified for an increasingly innumerate public. Dumbrill and I, and probably many others unknown to us, are studying a tradition that was going astray by the second century AD. The Roman authors who are still writing variations on the old mythology probably no longer recognize its original harmonic content at all. Judaism appears when reductionism is already the newest game.

The Bibles' clue to a new cube root of 2 approximation lies in Amram's marriage to Jochobed, when both were 126, according to some Jewish stories, for she, Divine Splendor, plants the genetic seed of 7 into the tribe of Levi so that 7x9=63 becomes the new Equal Tempered cube root of 63/50=1.26 that allows YHWH's reductionism to four good Jews as sufficient to save the world. This explains why the tribe has no land of its own, but is distributed throughout the other twelve. But she is hardly original. According to the ancient Sumerian King List Gilgamesh reigned for 126 years during the third millennium BC.

I am claiming that the history of mathematics is seriously flawed by its total neglect of ancient mythology - the normative language of early science. I believe that our dialogue is slowly dredging up the supporting evidence. And that we must continue to expect severe resistance until enough circumstantial evidence is produced to make establishment thinking uneasy about its old assumptions. Where music is concerned our assumptions have been wrong for 25 centuries.

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Professor Emeritus
City University of New York, N.Y.
June 2005

In memorian Richard G Dumbrill.

Preface

My enthusiasm for the music of the Ancient Near East came generally from the study of the works of the Arabian theoreticians of the *Umayyad** and*Abbāssid** periods, from the seventh to the thirteenth centuries of the Christian Era, and especially from the Jewish, Christian and Muslim scholars of Moorish Spain, prior to the Reconquista. Their works on music were not, as has been consistently written, copies from earlier Greek sources: they came from earlier ones, in the Middle East. In fact, it was the Greeks who were the plagiarists, and all that we have from the Platos and other Aristotles is much later copies of dubitable originals spreading from the first century AD onward.

On the other hand the theoretical written evidence from the Ancient Near East is contemporary with their authors in most cases and predates Pythagoras, for the oldest known source, by some 1500 years.

Written music p*er se c*ame to us under the form of 29 fragmentary clay tablets in the Hurrian language written with the syllabic Babylonian cuneiform script. They were found at the site of Ras al-Shamra, the ancient Ugarit, in North West Syria and date from about 1400 BC.

The iconographic evidence is ample though insufficient as always, but it covers some 3000 years from the Uruk period to the dawn of Christianity.

Whilst this book was originally intended for both the Assyriologist and the musicologist as a comprehensive reference work, it is hoped that anyone interested in music in particular and civilisation in general, or vice-versa, might find it of interest. It is for that reason that whilst I have been compelled to produce copies of the original texts as

*The Umayyad period starts with the death of Ali in 661 AD and ends with the rise of the Abbasids in 750. In turn, the Abbasid dynasty ends with the fall of Baghdad in 1258.

well as their transcriptions, which may seem superfluous and even pedantic to the musicologist, assyriologists may find certain aspects of the musicology obscure; so I have tried my best to be as clear as possible under the circumstances and have included diagrams, footnotes and other annotations whenever relevant.

The indices will elucidate most unfamiliar terms and those unelucidated will generally prove inessential. I have included some assumptions of mine which are currently debated, if not disputed, with certain scholars but whenever mentioned I have made it clear that these hypotheses were precisely enunciated as being my sole responsibility so that they may be judged accordingly and independently from undisputed academic statements, or such statements that are yet undisputed.

The volume is divided into four books. The first one discusses theory, the second is about the Hurrian hymns. The third book deals with organology. The fourth book is a lexicon. A complementary work on Sumero-Akkadian hymnology is currently under compilation as a separate volume as its inclusion in the present would have enlarged it unreasonably. The matter of music in social life is not addressed as a separate issue but is debated whenever appropriate. The music of ancient Egypt, which does not belong to the geographic perimeter of the ancient Near East, is referred to whenever relevant.

I am greatly indebted to my good friend, Dr. Irving Finkel, especially for making sure that my assyriology was correct, and generally for his authoritativeness; to Professor McClain for his profundity in all matters of mythology, music and numbers; to Dr. Dominique Collon for her advice. This indebtedness is generally extended to the Western Asiatic Antiquities department of the British Museum who have given me all the help I needed. I am very grateful for the late Professor Oliver R. Gurney's help over the years, which was always as prompt as it was expertly meticulous; to Professor Dr. Gernot Wilhelm of Würzburg University for having read my work on the Hurrian hymns and given me much of his time on Hurrian matters; to Madame le Docteur Marcelle Duchesne-Guillemin for her criticism; to the following institutions and museums for their help: the Oriental Institute, Chicago; the University Museum of Philadelphia; the Musée du Louvre in Paris; and to the Ashmolean Museum, Oxford.

Yumiko Higano produced the line drawings with great art, patience and modesty for which I am immensely grateful. Gordon Naysmith added commas and colons, erased abundant 'buts', countless gallicisms and after numerous readings made sure that what I had written was really what I meant. My good friends Anthony Churchill and John Winning have sorted out the financial matters for the production of this book and I am especially grateful for their support.

I am also greatly indebted to all of these other anonymous victims . . .

Chelsea
In festo Sancti Eduardi Confessoris
2005

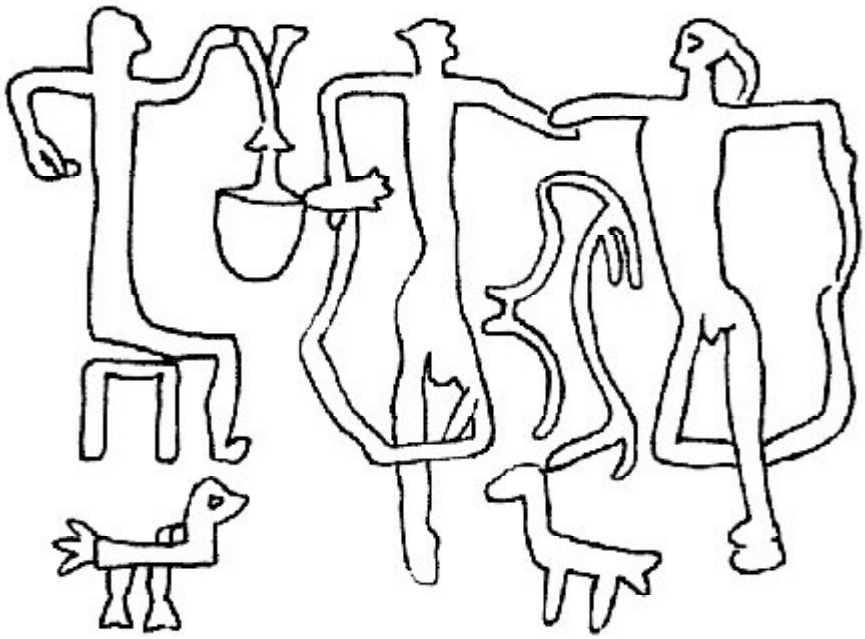


Plate 1. Dancers. Period IV. 410

Contents

This volume is divided in four books each of which having its separate table of contents, list of illustrations.

BOOK I, Theory 11
Table of contents 12
List of figures 13
List of plates 14

BOOK II, The Hurrian hymns 111
Table of contents 112
List of diagrams 113
List of illustrations 114

BOOK III, Organology 175
Table of contents 176
I - Harps and balags 179
II - Lyres 227
III - Lutes 305
IV - Aerophones 345
V - Percussion 359

BOOK IV, Lexicon 387
Lexical index 455

INDICES
Provisional list of bibliographical abbreviations 463
Selective musicological bibliography
articles 499
books 505
List of iconographical numbering 507
General index 520

BOOK I

Theory

Table of Contents

Theory 11
Note on transliteration 15
Dates 15-16
Introduction 16-19
Liminary to musicology 20-21
Liminary to assyriology 22-25

Cuneiform texts:
UET VII 126 27
a) History 28
b) Interpretation 28
c) First hypothesis 30
d) Second hypothesis 31
e) Third hypothesis 35
f) Epitome 36

CBS 10996 37
a) History 37
b) Interpretation 37
c) First hypothesis 39
d) Second hypothesis 41
e) Philology 44
f) Epitome 45

UET VII 74 47
a) History 47
b) The right column: Interpretation 48
c) First hypothesis 52
d) Second hypothesis: tonometry 54
e) The left column: First hypothesis 63
f) Second hypothesis 67

N 4782 70
a) History 71
b) First hypothesis 73
c) Second hypothesis 74

KAR 158 77
a) History - interpretation 77

N 3354 85
a) History 85
b) Interpretation 86
c) First hypothesis 87

BM 65217 + 66616 89
a) History 89
b) Interpretation 90
c) Hypothesis 92

An anonymous O.B. text 97
a) Introduction 97
b) Philology 98
c) Musicology 98
d) First hypothesis 99
e) Metrology 101
f) Organology 103
g) Second hypothesis - Organology 105
h) Musicology 106
i) Conclusion 109

Other text
The Converse tablet 110

List of illustrations
Figures

Figure 1. UET VII, 126. *Sumerian, Akkadian and translation. Obv. l. 1-10* 29
Figure 2. Greek names for the strings of the heptachord 30
Figure 3. Akkadian list of interval CBS 10996, lines 11-24 38
Figure 4. Schematic representation a) CBS 10996, lines 11-24 39
Figure 5. Schematic representation b) CBS 10996, lines 11-24 40
Figure 6. Reconstruction of CBS 10996 lines 3-24. 42
Figure 7. Transcription of CBS 10996 43
Figure 8. Transliteration of UET VII 74 48
Figure 9. Translation of the reconstructed UET VII 74 49-50
Figure 10. Ascending paradigm for UET VII 74 52
Figure 11. Descending paradigm for UET VII 74 52
Figure 12. Notation of the Old Babylonian modal system 54
Figure 13. Old Babylonian, modal system expressed in Cents 60
Figure 14. Schematical rendition of the god numbers 62
Figure 15. UET VII 74 transliteration of the left column 63
Figure 16. Crocker's reconstruction of the right col. of UET VII 74 65
Figure 17. Pentatonic scale system in UET VII 74 66

Figure 18. Pentatonic arrangement 67
Figure 19. Schaffer's transliteration of N 4782 71
Figure 20. Reconstruction of UET VII 74 with N 4782 72
Figure 21. Heptagonal pattern from former sequence 74
Figure 22. Leichty's transliteration of N 3354 86
Figure 23. Kilmer's transliteration of BM 65127 + 66616 90-91
Figure 24. Transliteration of the anonymous text 97
Figure 25. Tetrakaidecagon 102
Figure 26. Intervals in cents 103
Figure 27. Fingering pattern 106
Figure 28. Fret movements 107
Figure 29. Fret movements 108
Figure 30. Hypothetical tuning 108
Figure 31. Transliteration of the Converse tablet 110

Plates

A number placed at the end of a caption refers to the iconographic classification of the author.

Plate 1. Dancers. Period IV viii
Plate 2. Relief from Nineveh7th century BC 19
Plate 3. Gurney's copy of UET VII 126 27
Plate 4. XVIIIth dynasty musicians playing a giant lyre. Karnak 33
Plate 5. Hittite giant lyre on Inandik vase 33
Plate 6. Mythological animals playing a giant lyre.Ur 34
Plate 7. CBS 10996, cols. i, ii and iii 37
Plate 8. Gurney's copy of UET VII 74 47
Plate 9. Large pentachordal boviform lyre, Suza 68
Plate 10. Broken arrangement of the strings 68
Plate 11. Zoomorphic lyre from Uruk 69
Plate 12. Copy of obv. and rev. of N 4782 70
Plate 13. Copy of obv. and rev. of N 3354 85
Plate 14. Copy of obv. and rev. of BM 66217 + 66616 89
Plate 15a. Photograph of the anonymous tablet 96
Plate 15b. Copy of the text 97

Note on transliteration

It is impossible to say what was the exact pronunciation of Sumerian, Akkadian or Hurrian. However some approximation is allowed on the probable basis of homophony with languages of the modern Near East. The vowels are *a*, *i* and *u* with *e* as a secondary development. They are pronounced as in Latin. The semivowels *y* and *w* and are pronounced as long *i* and *u*. The consonants are divided as follows:

1. Dentals: voiced *d;* unvoiced *t;* emphatic *ṭ* and *n*.
2. Labials : voiced *b;* unvoiced *p* and *m*.
3. Palatals : voiced *g;* unvoiced *k;* emphatic *q*.
4. Sibilants: voiced *z;* unvoiced *s;* emphatic *ṣ* (Hebrew צ, Arabic ص, *ts* as in *ts*-ar) and *ś* (Hebrew שׁ and Arabic ش , *sh* as in *sh*-ine).
5. Liquids : *l* and *r*.
6. Laryngals: the glottal stop which is the audible release of a closure at the glottis.
7. Velars: *ḫ* as *ch* in lo-*ch* (Arabic: خ).

Dates

Absolute dates are inaccurate as they vary almost with each scholar. For that reason I have adopted Dr. Collon's division in seven time zones of about 500 years each.

Period I	Before	3000 BC
Period II	from	3000 to 2334 BC
Period III	from	2334 to 2000 BC
Period IV	from	2000 to 1500 BC
Period V	from	1500 to 1000 BC
Period VI	from	1000 to 500 BC
Period VII	from	500 BC onward.

These time zones relate only to the iconography. The periods named elsewhere follow the established linguistic chronology. All dates are BC except if qualified as otherwise. The Sumerian period is from about 3500 to 2500; the old-Akkadian period follows the Agade period from 2500-1950; the old-Babylonian period coincides mainly with the first dynasty of Babylon, 1950-1530; the middle-Babylonian period, 1530-1000, is less defined; the neo-Babylonian period ends with the fall of the Assyrian empire in 625. The Assyrian group of dialects of Northern Mesopotamia is divided into the old-Assyrian period, 1950-1750; the middle-Assyrian period, from 1500 to 1000 and the neo-Assyrian period from 1000 to 612.

Introduction

The period covered in the present work is contemporary with the history of the Sumerian and Akkadian civilisations: about one millennium for the first and two for the second - some three thousand years of musical development.

Whilst the Sumerians would probably have witnessed the apotheosis of the five note system that characterises pentatonism, the Akkadians probably saw its metamorphosis into the nine notes of enneatonism and the seven notes of heptatonism, the basis for our own modern system. These civilisations witnessed the transition between musical illiteracy and literacy. The study of their musical system is therefore a fascinating one since it is the origin of all others.

Consequently, the temptation to relate the most ancient music system to any later one was to be avoided at all costs. This was very difficult at times as the so familiar heptatonic mould was lurking close behind to encourage false hypotheses. After all if pentatonism is natural it is certainly not the case with heptatonism which is artificial. What makes it feel intrinsic is centuries of usage. One of the particularities shared by both written Sumerian and Akkadian is syllabism, not alphabetism, as is the case with later languages such as ours. So they naturally conceived their musical notation syllabically. It is this concept which led them to the perception of sequences of notes as independent structural entities. Similarly, it is our alphabetic system which conditions the way in which we perceive music. We hear each of the notes of a melody as an independent entity - of course all of them relating to each other as we see words made up of different letters of the alphabet. When we hear the series c-b-a-g, or c-e-f, for instance, we do so by allocating each of the degrees a specific frequency.

The Sumerians and the Akkadians would have heard the same sequence as a homogeneous and indivisible melodic pattern with its own characteristics and bearing its specific name. Thus, Sumero-Akkadian syllabism was to shape the nature of the music of the antiquity, and to a certain extent that of Ancient Greece since the tetrachord was the basis for their system. However, the Greeks noted their melodies alphabetically[1], both vocal and instrumental.

As early as the mid-second millennium BC the Hurrians wrote lyrics and melodies using syllabic Babylonian cuneiforms. They did so in preference to the usage of the letters of their short-lived Ugaritic alphabetic system, as far as we know. This would have been a far more efficient alternative had they wished to write their music in separate notes. However they did not and this shows that they were committed to the syllabic system of notation. This is why, in addition to numbers which placed and qualified the ambitus and the nature of their intervals, they had for each of them a specific name. Their meaning is now lost as the etymology stems from too long ago; probably in protoliterate or even in prehistoric times.

1 West, M.L., *Ancient Greek Music*, (Oxford, 1992), Chapter 9.

This is also why they distinguished string toponymies from those of the intervals but additionally gave numbers to both strings and notes of intervals[1], for the evident purpose of comparison for which they had invented ratios. Writing down pictures and ideas as pictographic and ideographic stylisations[2] would have been a difficult enough principle with which to come to terms, some 5000 years ago, but the thought of applying the same concept for the purpose of transcribing the ethereal nature of music must have been one of the greatest intellectual achievements of human thought in antiquity. It is by so doing that they were able to understand that regardless of its nature music was very much a concrete expression of the arts, as for the nature of its sounds, but that at the same time it was very much abstract as for its propensity to translate and then suggest emotion. Thus they had anticipated Aristotle's principle of entelechy by more than two thousand years. They probably perceived dualism in music through the principle that ratios of string lengths behave in reciprocal relation to ratios of frequency. This dualism adhered to the Mesopotamian literary genre of the dispute between body and soul which expressed some basis for their philosophy[3].

The geographic setting naturally coincides with the Sumero-Akkadian cultural boundary but extends further from the Taurus at the North West, to the Caucasus at the North East, down to the Arabian Gulf via the Zagros mountains and from the Arabian Gulf to the Sinai.The cultural setting is mainly Sumerian and Akkadian with regard to theoretical tablets which were found at the sites of Ur, Sippar, Nippur and Aššur.

1 They did not actually give numbers to notes as such but in the context of a specific scale it is clear that the numbers of the strings, on which an interval was placed, became numbers for the interval. In CBS 10996 when there is mention of interval *x* placed on degrees 1 and 5, then the interval *x* can, in relation to the scale in which the demonstration is given, be enunciated as notes 1 and 5.

2 A stylisation is what results from the usage of a stylus, the instrument with which they inscribed cuneiforms on clay tablets.

3 Brock, S. P., *The Dispute Between Soul and Body: An Example of a long-lived Mesopotamian Literary Genr*e. ARAM 1:1 (1989) 53-64.

The Hurrian hymns were unearthed at the site of Ras al-Shamra, the ancient Ugarit. The iconography is much more widespread being found almost everywhere, but the only actual instruments, some of the oldest of the world instrumentarium, were found at Ur, by Sir Leonard Woolley[1] in the late twenties, and consisted of four large lyres, two harps and meagre remains of pipes.

Plate 2, Relief from Niniveh, palace of Ashurbanipal,
BM 124922 59, period VI, VIIth BC. 59

Liminary to musicology

The keyboard of the modern concert piano spans eight octaves[1]. The first and last notes are Cs. So the instrument has 9 Cs and subsequently 8 Ds, 8 Es, and also 8 $C^{\#}$s, 8 $D^{\#}$s etc. The octave interval as a special status: its two extreme notes, treble and bass, can be expressed as ratios which can either represent units of string lengths or units of frequencies. If they are taken as units of string lengths then two strings with the same mass and on which the same tension is exerted, and plucked, one twice the length of the other, they will sound exactly one octave apart. This is represented by the ratio of 2:1, 2 being the longest string giving the bass note and 1, the octave above.

If the figures are taken as units of frequencies, where the higher the number of vibrations per second (frequency) the higher the pitch then number 1 would be the bass note and 2 the octave above it.

Thus string lengths and frequencies of vibration stand in a reciprocal relation to one another. The octave ratio of 2:1 is made up of the addition of two others, 3:2 and 4:3, the fifth and the fourth respectively (3:2 x 4:3 = 12:6 = 2:1) which are the most consonant intervals, after the octave. The quotient of the subtraction of one from the other (3:2 ÷ 4:3) amounts to the tone (9:8). From the resulting notes, C-F-G-C, other descending or ascending fifths or fourths can be produced with the result that this will finally generate a diatonic scale: C-D-E-F-G-A-B-C, or any other scale ascending or descending, consisting of contiguous degrees such as G-A-B-C-D-E-F-G, or E-D-C-B-A-G-F-E, for instance. This arrangement leads to a series of ratios: 1:1, the unison; 9:8, the second; 5:4, the major third; 4:3, the fourth; 3:2, the fifth; 5:3, the major sixth; 15:8, the minor seventh; and 2:1, the octave. As a result the diatonic scale is composed of a series of tones and semitones arranged differently, depending on which is the starting note, but always consisting, in the heptatonic model, of 5 tones and 2 semitones.

1 On the Bösendorfer concert piano, Imperial model. Other modern pianos usually have 7 and 1/4 octaves, from a to c.

This is why there are no sharps between E and F, and B and C, since this is where the semitones naturally fall.

It is not only to the famous German physiologist and physicist, Hermann von Helmholtz (1821-1888) that we owe academic credit for researches into the nature of sound[1], but also to one of his most renowned pupils, Heinrich Rudolf Hertz (1857-1894) who gave his name to frequencies of vibrations (Hz). If we agree that c' equals 264 Hz, then the C an octave below, will equal 132 Hz, and the one above 528 Hz and so on. This confirms that ratios of frequencies behave in reciprocal relation to ratios of string lengths. However, neither ratios nor Hz are practical enough measurements for the purpose of the musicologist. A French scientist, Baron Gaspard François Clair Marie Riche de Prony (1755-1839), devised a system, later claimed by the tone-deaf English philologist, mathematician and musicologist Alexander John Ellis, (1814-1890). This was the *centième* and consisted in the division of the octave into 1200 such centièmes, 'cents' for short[2]. This is the most reliable measurement in musicology as one can refer to the equal temperament as a standard where the scale of C major, for instance, proceeds as 0-200-400-500-700-900-1100-1200. We have a semitone between 400 and 500, and another one between 1100 and 1200, E-F and B-C. Variations from these figures, such as the Pythagorean tone, 9:8 = 203.91 shows it is larger by 3.91 cents than the equal temperament tone, etc.

1 *On The Sensations of Ton*e, in the translation by A.J. Ellis, 1885, (Dover Publications, 1954).
2 Tables can be used but it will suffice to multiply the constant 3986.314, with the logarithm to base 10 of the quotient of the division of the highest figure of the ratio by its lowest member.

Liminary to Assyriology

The term Assyriology relates generally to the history and the arts, but specifically to the study of the languages of the ancient Near East. It happens that most of them were written in cuneiform script which consists of wedge-shaped strokes, vertical, horizontal and oblique, marked on fresh clay with a stylus. The term applies principally to languages written in this form, of which the first known was Sumerian, followed by Akkadian, Hurrian, Hittite, Ugaritic, to name the most common and their colloquial or dialectal variants. These languages divide in two principal families, non Semitic and Semitic. The non Semitic includes Sumerian, Hurrian, Hittite, Luwian and Palaic. The Semitic branch includes Akkadian, (namely Babylonian, Ugaritic and Assyrian) and South Arabian constituting the East-Semitic branch of linguistics, whilst the West branch, which mainly did not use the cuneiform script, includes Amorite, Aramaic, Canaanite, North Arabian and Hebrew. Syriac and Arabic come later. The whole story is much more complicated since there were possibly other tribal variants from the Biblical Kenites, Kenizzites, Kadmonites, Perizzites, Girgashites, Jebusites, Ammonites, Edomites, Sidonians and other Kalebites.

The Sumerian script was originally essentially ideographic. Each sign had a concrete meaning, or meanings. From this basic value derived other synonymous or phonetic values. For instance, the sign originally depicted the mouth but also 'speech'; 'teeth'; 'to shout' etc. One sign came to have multiple possible readings.

Thus KA is the mouth; INIM is the speech; ZÚ is the tooth; DUG_4 is 'to speak'; GÙ is 'to shout', etc.

When writing Akkadian, a sign can be used phonetically, for example the sign can either be read as '*kur*' in '*ik-kur*' or it can be read '*mat*' in '*šal-mat*' etc. It can also be read ideographically, representing an entire word.

For example, the same sign can be read as '*mātu*', 'country' or '*šadū*', 'mountain', etc. Many signs have this double function but some of them are only phonetic and others only ideographic. In addition certain signs can be used as determinatives, pre or postpositioned, to indicate the nature of an item. For example the determinative for 'wood', which is 'GIŠ', is placed in front of terms to indicate the material of which they are made.

The Akkadian language, of which Babylonian and Assyrian are dialectal variants, is virtually fully understood. It is not as well known as Latin but only because some Akkadian words are still unknown, but it is certainly as well understood as classical Greek. Moreover, the original Akkadian texts abund in much greater quantities than any of the original Greek literature.

The Sumerian language is less well controlled but there is a constant progress in its understanding. In lexical, or dictionary texts, the left column of a tablet is usually written in Sumerian and the right one in Akkadian, or sometimes other languages appear too. This is how we are currently able to understand a considerable quantity of terms from different languages using cuneiforms. Tens of thousands of tablets hosted in the great collections of the world, written from a list of over 600 principal cuneiform signs, each of them with many variations, mainly deal with daily life but some texts devoted to literature; lexicology; education; medicine; pharmacology; hepatoscopic, celestial or other observation; history; letters; law; poetry; personal nouns; religion; economic texts and contracts; boundary stones and colophons[1].

Of all these thousands of surviving tablets, only seven Akkadian texts discovered up to now relate to music theory - one needle in a haystack! but we are extremely fortunate to have discovered anything at all.

This is much more than the Egyptologists can claim since these unfortunate scholars have not found yet even the smallest fragment of ancient Egyptian text, hieroglyphic, hieratic or demotic, on the subject.

1 A colophon is the inscription usually found on the side of a cuneiform tablet indicating the dedicatee gods. In addition, it says what the tablet is about, who dictated it and the name of the scribe who wrote it. It possibly corresponded to the title and the name of the author of a book printed on the spine allowing for identification when shelved.

How we are certain that the text we have in front of us is about musical theory needs to be explained. Firstly, there are terms of which we are sure that they are undisputed musical expressions. One of the most common being Sumerian 'SA', Akkadian '*pitnu*', which means 'string'- of a musical instrument. In addition, the texts included numbers which could not have equated to anything other than to musical notes, *i.e.* c = 1, d = 2, e = 3 etc. In some cases two numbers were given in one line along with a name, thus defining the relative quality of an interval along with its denomination. For example, they would have written 1-5 equals fifth 'x', or 5-2 equals fourth 'y'. These numbers were then used to define the relative positions and qualities of seven scales by indicating the position of the tritone in each of them and how their correction to consonance lead to the creation of a new scale. For example, they would have written that in scale 'z', 1-2-3-4-5-6-7-8, the tritone is placed between 1-4. This immediately tells us that this scale of 1-2-3-4-5-6-7-8 is our mode of F = f-g-a-b-c-d-e-f since 1-4 = f-b and that f-b is a tritone - the correction of b to b flat would have resulted in the following: f-g-a-b b -c-d-e-f = c-d-e-f-g-a-b-d. This being the basis for their theory.

The 29 Hurrian tablets with written music and lyrics were more difficult to decipher. The Hurrian language is extremely obscure. It originates from the North East Caucasus and does not belong to the Semitic group of languages. The Hurrians migrated down to the North East of Syria towards the beginning of the second Millennium BC and occupied the site of Ugarit, modern day Ras al-Shamra, for about 800 years. There they adopted the Babylonian cuneiform script which they used alongside the Ugaritic alphabetic cuneiform system for about a century borrowing a considerable number of Akkadian terms. They 'Hurrianised' most of the Babylonian musical terms. Babylonian *kablitūm*, for instance, became Hurrian *qablīte*, and so on. As with Sumerian, Hurrian is an agglutinative language which exclusively uses monofunctional suffixes arranged in a strict sequential order. The roots are always monosyllabic. Sadly the lyrics, in the tablet mentioned above which the music accompanies, are almost totally obscure.

With the exception of a few isolated words, toponyms and names of deities we have not yet unearthed sufficient bilingual material to provide us with a comprehensive vocabulary.

The study of the music of the ancient Near East is a recent science since the first theoretical musical tablet was not published, and partially understood until 1960[1]. Prior to this date, all attempts to read music from any tablet was erroneous. In 1924, the ethnomusicologist Curt Sachs[2] made an attempt at finding music in a Babylonian bilingual hymn from a scale which he reconstructed through a statistical estimation of the frequency of syllables. The result was totally unacceptable. In 1933, Benno Landsberger rejected Sachs' thesis on philological grounds and showed that the syllables had nothing to do with music[3]. In 1937, Canon Galpin[4] proposed another interpretation of the same syllables and found more music. He would have even from a laundry list. He thought he had discovered the key to Babylonian musical notation but nothing was more untrue. In 1968, Galpin was outlived by his aberration which this time was hosted in the *Encyclopédie des Musiques sacrées*[5]. It follows that the corpus of books and articles devoted to the subject is restricted to hundreds rather than thousands of pages of which a comprehensive bibliography is given at the end of the volume.

1 CBS 10996.
2 Sachs, C., *Die Entzifferung einer babylonischen Notenschrift*, Sitzungsberichte d.Preuss. Akad.d. Wissenschaften 18, 1924, 120 ff.
3 Landsberger, B., *Die angebliche babylonische Notenschrift*. Archiv für Orientforschung 1, 1933, 170-178.
4 Galpin, F.W., *The Music of the Sumerians. . .* (Cambridge, 1937) 99-104 and Plate IX, p 69.
5.Statlender, R., *Encyclopédie des Musiques sacrées* Sumer et Babylone. (Paris, 1968) 303-309.

UET VII 126[1]

Which gives the names of the nine strings of a musical instrument.

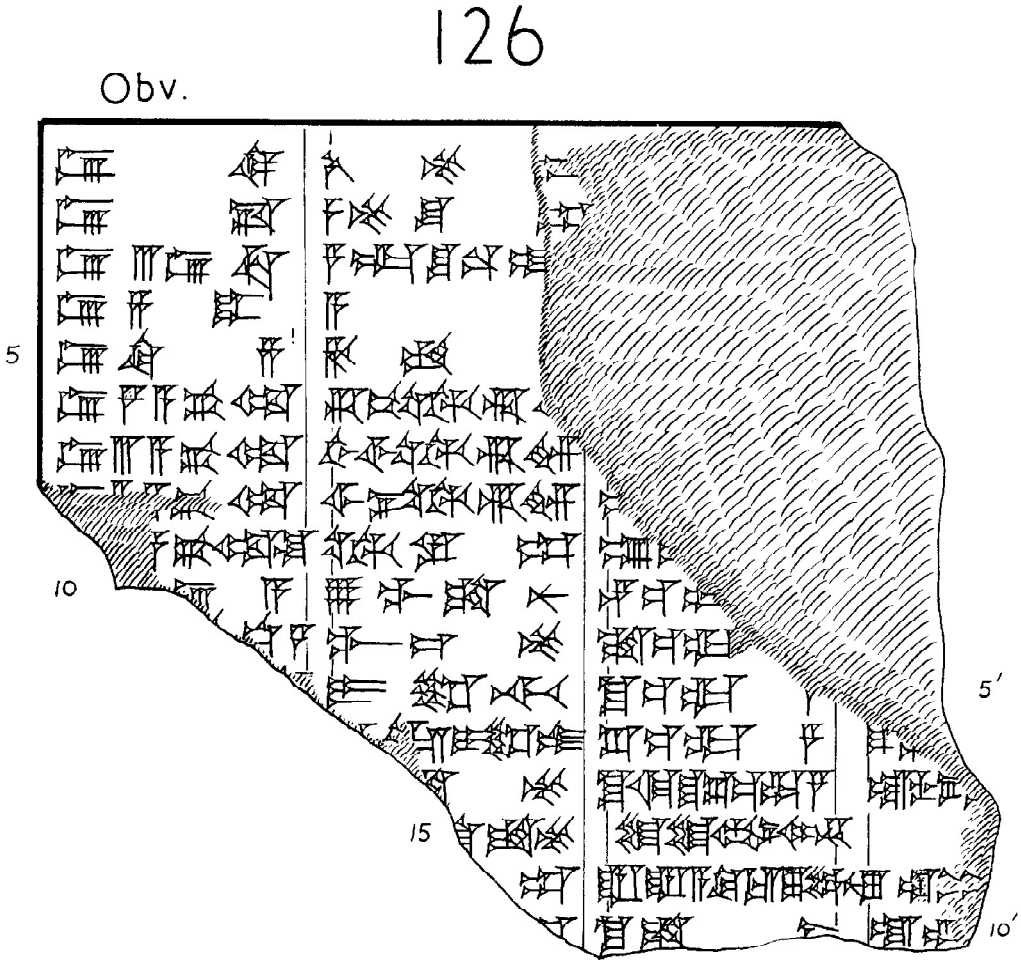


Plate 3, Gurney's copy of UET VII 126, cols. i, ii, iii and iv, i and ii relevant.

1 The tablet appears in *Ur Excavations Texts*. Publications of the joint expedition of the British Museum and of the University Museum of the University of Pennsylvania, Philadelphia, to Mesopotamia. Volume VII, Middle Babylonian Legal Documents and other Texts. Oliver R. Gurney. Note the lacuna in L.4 Col.2 which was later corrected in IRAQ XLVI 82, note 1. Professor Gurney writes back to me on this matter on the 15th April 1996: '*...I must have left the end of the line for a second look because it was dirty or otherwise difficult to read and then forgotten to come back to it. This happened to me several times!*'

a) History

This tablet was the first to reveal some terms for the understanding of ancient Near Eastern music theory. It was originally brought up by Kilmer in one of her early papers[1] and then published in 1965[2] in another. It was unearthed at Ur at the site of *Dublamaḫ*, south of the main courtyard in room in the late twenties by Sir Leonard Woolley (1880-1960) who gave it the field number U.3011. The tablet has been returned to Baghdad. It turned out to be a Late Babylonian copy of the 32nd tablet of the series *nabnitu*, one of the great Babylonian lexical texts. In his publication[3] of the Ur Excavations Texts, Professor Gurney of the University of Oxford renamed it as UET VII 126 being the 126 th text of his VII th volume, and this is how it is referred to in the present work. The tablet itself dates to the early first millennium BC, but is certainly the copy of a much older one, perhaps as much as a thousand years.

b) Interpretation

Lines one to nine of the tablet present little problem in their interpretation. The first line:

starts with the Sumerian logogram SA, which means 'string[4]'. It is followed by di[5], which means 'front' in a musical context.

1 Kilmer, A., *Two New Lists of Key Numbers for Mathematical Operations.* Orientalia 29 (1960) 273-308.
2 Kilmer, A., *Studies in Honor of Benno Landsberger* (1965).
3 Gurney, O R., *op.cit.* Pl. LX.
4 Landsberger, B., *ZA* 42 (1934) 155 f.
5 *i.*e., sa.di for sa.did, 'string one'; for Sumerian did = 'one', see Falkenstein, *Gerichtsurkunden* III, 97 (corrected in *Orientalia* XXIX 299, n.4).

This is confirmed by the second column in Akkadian where we have the signs, *qud;* *nu;* and partially erased , *u[m]*, *qudmum*[1], which means '(string) front'. The word 'string' is not actually written in the Akkadian but it is suggested from the Sumerian column. The reading of the other lines follows the rule of the first one with the exception of the last, line 10:

It is broken away at the beginning, but it is possible to reconstruct it from the second Akkadian column in which we have which means nine, and pi; it; and nu, pitnu. This word means 'string' and thus the line refers to a musical instrument fitted with nine strings or to a musical system based on nine notes[2] which we refer to as an enneachord[3], since it is so indicated both in Sumerian and Akkadian.

Following the method of interpretation of the first line, the tablet can now be transliterated and translated as follows:

Line	*Sumerian*	*Akkadian*	*Translation*
1	sa.di	*qud-mu-u[m*	front string
2	sa.uš[4]	*šá-mu-šu-um*	next string
3	sa.3.sa.sig	*šá-al-šu qa-a[t-nu*	third, thin string
4	sa.4.tur	*a-ba-nu-[ú*	fourth, small/Ea-created-string
5	sa.di.*5	*ḫa-am-[šu*	fifth string
6	sa.4.a.ga.gul	*ri-bi úḫ-ri-im*	fourth behind string
7	sa.3.a.ga.gul	*šal-ši úḫ-ri-im*	third behind string
8	sa.2.a.ga.gul	*ši-ni úḫ-ri-im*	second behind string
9	[sa.1].a.ga.gul	*úḫ-ru-um*	behind string
10	[9].sa.a 9	*pi-it-nu*	nine strings

Figure 1, UET VII 126. Sumerian, Akkadian and translation, obv, lines 1-10.

1The Akkadian ending *-um* is the mimation of the nominative case, i.e., the addition of an *'m'* after the case ending *-u*. This applied to the two other cases, the accusative and the geneitive, during the Old-Babylonian period. Later, the mimation drops and this is why we have terms sometimes transliterated with endings *-um*, *-am*, and *-im*; and *-u*, *-a* and *-i*. I have transcribed the terms as they appear, with or without mimation, in respect of the text from which they come to provide an indication of their period. In the lexical section, however, all terms are noted in their classical form, without mimation, to conform with the practice in the Chicago Assyrian Dictionary.

2 That Sumerian SA = Akkadian *pitnu(m)*, meaning string and therefore the note produced by that string is self evident. See lexicon sub sa.

3 System of nine notes or instrument fitted with nine strings.

4 Loanword: sa.uš > *sawušše* > *sam-šu*, 'the one that follows', 'the next one'.

It is quite possible that the ancient theoreticians would also have used the names or numbers of the strings to designate the notes generated by the strings in relation to a specific scale. Plato's Republic[1] mentions: '. . . *or is not the aulos the most "many stringed" of instruments and do not the pan-harmonics themselves imitate it?* ' It is clear that 'strings' is here substituted for 'notes' since the aulos is a wind instrument. However, we have no evidence of such a practice in the Ancient near east.

The first nine lines in the tablet list the nine strings of an instrument, or of a system, in an inward notation as the terms and figures explain: 'first string of the front, second, third thin, fourth, fifth, fourth of the behind, third of the behind, second of the behind, and behind string; 1-2-3-4-5-4-3-2-1'. Later the Greeks used a similar method but it was based on heptatonism:

1	*nētē*	bottom
2	*paranētē*	alongside bottom
3	*tritē*	third
4	*mesē*	middle
5	*lichanos*	forefinger
6	*parhypatē*	alongside topmost
7	*hypatē*	topmost

Figure 2, Greek names for the strings of the heptachord

It has been suggested that this symmetry found in both Akkadian and Greek systems was devised in order to make it easier for the player to identify the strings rather than counting them from one end or the other[2]. However, this would have been a consequence of the system and not the reason for the design of such a system.

c) First hypothesis

At line 4 we have a variation on the usual Akkadian numbering with the term *abanû*, meaning 'Ea-created'. The Sumerian term for the same string is sa-4-tur. It means, literally, 'string four small'. This shows that some important alteration had been made to that note, possibly at the Akkadian period, to the extent that it required the intervention of one of the higher gods of the pantheon[3], Ea, who amongst other functions, was also patron of music.

1 *The Republ*ic, I, (London, W. Heinemann, 1930), 10.

2 West, M L., *The Babylonian Musical Notation and the Hurrian Melodic Tex*ts, Music and Letters 75/4 (1993) 161-179.

3 *Anu, Enlil, Ea* and *Si*n.

The third string is also distinguished by the adjective SIG =*qatnu*, which means 'thin'. We shall see from the next text that this string was the third to be tuned and that as a result of the method it was placed a third down from the first string. The term *qatnu* would generally have qualified secondary intervals, *i.e.* thirds and sixths, whilst another term, perhaps *pismu*, would have qualified primary intervals such as the fourth and the fifth. The 'thinness' of an interval would have qualified it as contrasting from the 'full-bodiedness' of a primary interval such as the fourth or the fifth. The Sumerian adjective for the fourth string: TUR = 'small' is not translated in the Akkadian as we have seen above. This is probably due to an older position of this fourth string prior to the alteration of its status under the auspices of the god Ea, perhaps at the pentatonic period.

d) Second hypothesis

Madame le Docteur Marcelle Duchesne-Guillemin advanced that the symmetry in the string numbering found its origins in pentatonism[1] She argued that if one reconstructed a Sumerian pentatonic scale as c-d-f-g-a and it was extended to a series of 9 notes arranged in the same pentatonic order, it would generate the following: c-d-f-g-a-c-d-f-g, where symmetry is almost perfect:

	c	d	f	g	a	c'	d'	f '	g'
	1	2	3	4	5	4'	3'	2'	1'

Since	1-2	=	1'-2'	=	one tone
	2-3	=	3'-2'	=	minor third
thus	1-3	=	3'-1'	=	just fourth
	3-4	=	4'-3'	=	one tone
thus	1-4	=	4'-1'	=	just fifth

where 4-5 does not equal 5'-4'.

1 Duchesne-Guillemin, M., *Survivance orientale dans la désignation des cordes de la lyre en Grèce*, Syria 44 (1967) 244.

Dr. Duchesne-Guillemin had not realised that had she transposed her pentatonic model to tonic 'a', and not 'c', she would have obtained the symmetry she had aspired to:

1 2 3 4 5 4' 3' 2' 1'
a c d f g a' c' d' f'

where	1-2	=	2'-1'	=	minor third
	2-3	=	3'-2'	=	tone
thus	1-3	=	3'-1'	=	just fourth
	1-4	=	4'-1'	=	minor sixth
	4-5	=	5'-4'	=	tone

and where both 1-5 = 5'-1' = are minor seventh.

This system is perfectly symmetrical. It includes the tone; the minor third; the just fourth; the minor sixth and the minor seventh[1]. There is iconographic evidence for this symmetry in Egypt, especially on one 18th Dynasty block at a temple to the Aten in Karnak[2]. There (Plate 2 opposite) two blind harpists are playing the same giant frontal symmetric lyre each plucking strings with both hands[3], or plucking with one and damping the strings with the other.

1 The ratio for the tone is 8:9, the minor third is 5:6, the fourth is 3:4, and 9:16 for the minor seventh. When the fundamental tone of an interval, that is its lowest note, is taken an octave higher, the interval is said to be inverted. Thus an inverted fourth becomes a fifth, an inverted minor sixth a major third, and an inverted major sixth a minor third. The corresponding ratios of pitch numbers are obtained by doubling the smaller in the original interval. Thus from 8:9, the major tone, we have 16:9, the minor seventh, 5:6, the minor third; we have 10:6 = 3:5, the major sixth, 3:4, the just fourth, we have 6:4 = 2:3, the just fifth.

2 Another being the Hittite example from Inandik (Plate 5 opposite).

3 However, one must not jump to the conclusion that harmony was practised at that time. It is not because we see four hands on that instrument that it means that the four hands were plucking different strings at the same time. The artists of the past could not freeze action in terms of tenths of a second as one can nowadays with a photographic camera. They would only have caught the general posture of the musicians. On the other hand, different notes other than those of the octave must have been heard sounded together more than once in a concert of the period, accidentally or not. However, whether they intended them to be, or perceived them as, harmony is another matter. It is all a question of teleology. They would not have used harmony because they did not need it and would not have invented it because they felt no creative necessity for it as they would not have had, in any case, the ability to understand it. Harmony appears only very late in the history of music, not before the second millennium AD. Monodic music is still practised today in the Middle-East and in other countries. It is obvious that this music has no need for harmony. The subtlety of monody resides in the minute differences in its intervals and is what produces its intense sensuality. When music was composed vertically, to read harmony, thus replacing horizontal composition, much was gained but also much was lost.

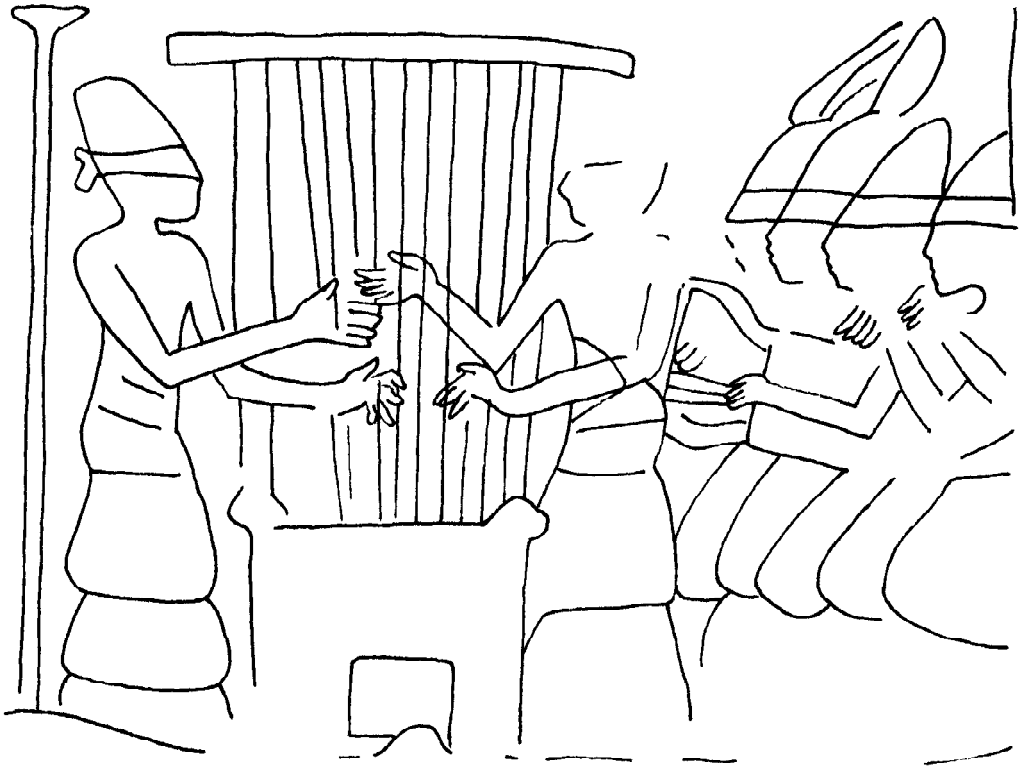


Plate 4, XVIIIth Dynasty musicians playing a giant lyre. Block from a temple to the Aten at Karnak.

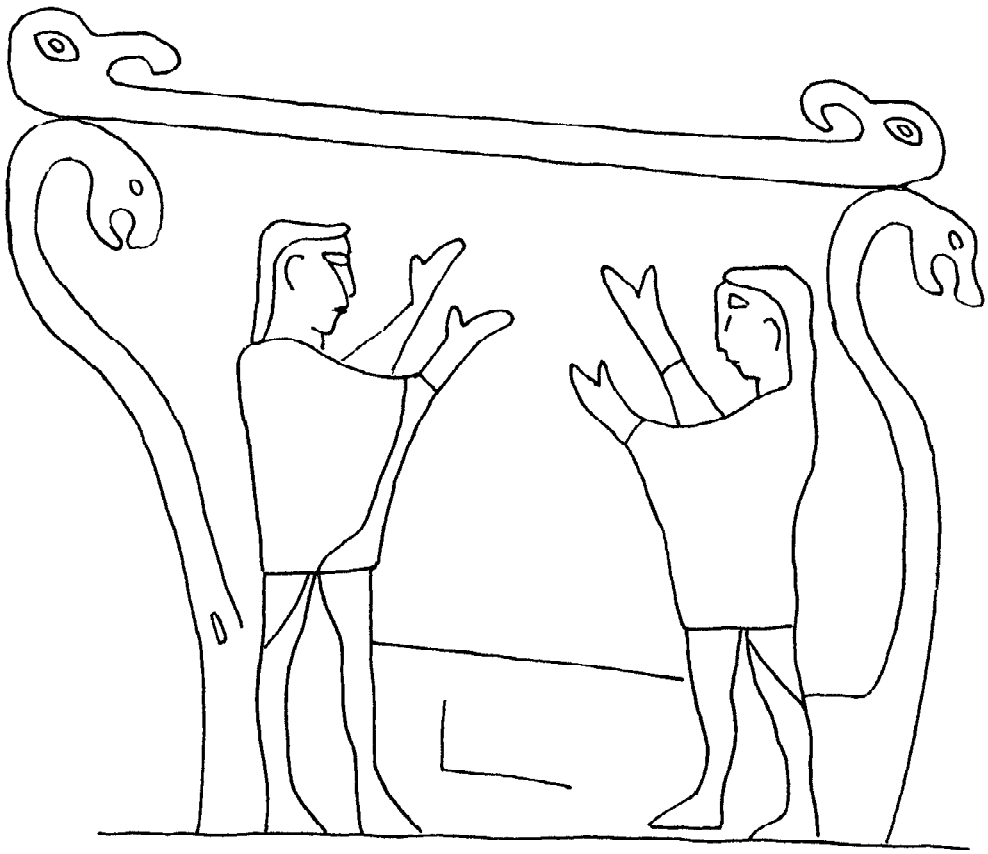


Plate 5, 516. Hittite Inandik vase giant lyre.The two characters in front of the instrument are not its players. However, the size of the instrument, if not borne from some highly imaginative mind, would have needed at least two instrumentists to make it play.

The strings measure about six feet from bridge to yoke. It is evident that such an instrument would not have been used for the interpretation of virtuoso pieces but rather for the purpose of the punctuation[1] of music, as does our modern double-bass. However, as it hosted two players, depicted here, implies that they might, in fact, have been playing the same notes in symmetry. That this was the case with the large lyres of Ur of the third millennium is unlikely because on the one hand these were smaller lateral-asymmetric instruments designed for one player, and on the other hand, the iconography generally does not attest otherwise even on the larger instrument of the late fourth millennium. There is however an inlay on the sound-box of a lyre from Ur, (Plate 6 below)*ca.* 2600 BC representing a giant lateral lyre which may have been played by two mythological animals, a donkey and a bear[2] with a smaller animal giving what might have been chironomic instructions to the rhythm of a sistrum.

Plate 6, mythological animals playing a giant lyre. Inlay on front of soundboard of a lyre from Ur, (ca. 2600BC) 377

1 I am using the word in relation to *'musical counterpoint'* rather than in relation to *'syntactic punctuation'*.
2 The bear is not actually seen playing. He holds one of the uprights. However, this would not have necessarily excluded him from playing occasionally, undepicted by the artist.

e) Third hypothesis

There is a first millennium tradition which associates certain numbers with certain gods[1]. It is possible however that this concept found its sources much earlier from an ancient musical tradition in the late fourth, early third millennium. However we have no evidence for this as far as we know. One cuneiform sign which represents the Babylonian god *Ea* also represents number 40 and number 4, LIMMU, *erbettu*, *erbe*, *erbet*, = 4^2. If the fourth note is numerically associated with the god *Ea* and on the basis that other major gods of the pantheon were also known as numbers then *An* = 60; *Enlil* = 50; Ea = *40* and *Sin* = 30. God numbers might at some point have either dictated the principal ratios of the system or it was musical ratios which dictated god numbers[3]. Not only do these numbers fit with the essentials of the ancient Babylonian musical system but also provide the positioning of the frets on the neck of the lute as will be demonstrated later. Furthermore this hypothesis could be supported on the grounds of animism which certainly found its origins in sound. When primitive man struck a piece of wood, stone, or skin, or blew into a tube or cavity or, much later, plucked a string on his harp and considered the resulting sound, he naturally concluded that what he heard was the supernatural voice of the object. The string was nothing more than the medium for the translation of the deity's voice. Thus, god ratios would come to equate either ratios of frequencies or ratios of string lengths, or both.

1 Livingstone, A., *Mystical and Mythological Explanatory Works of Assyrian and Babylonian Scholars* (Oxford, 1986), 30-48; Röllig, W., Reallexikon der Assyriologie, *sub* Götterzhalen.
2 Labat, R./Malbran-Labat, F., *Manuel d'épigraphie akkadienn*e, (Paris, 1976) 243.
3 Plutarch's commentary on Plato's *Timaeus (De animae procr.* 31) says that the Chaldeans connected musical intervals with the seasons, *i.e.* the fourth (3:4) = Autumn; the fifth (2:3) = Winter; the octave (1:2) = Summer; whilst the tonic (1:1) = Spring. See Farmer, H.G., *The Music of Ancient Mesopotamia* THE NEW OXFORD HISTORY OF MUSIC, Tome I, p. 253. Since we know that certain gods were associated with months or days of the month, therefore seasons, it is not unreasonable to assume that their numbers and their ratios coincided with those of music.

f) Epitome

This tablet has shown that an undefined but typical musical instrument had its strings counted and named inwardly in a series of nine: 1-2-3-4-5-4-3-2-1. The fourth string was given a special status, probably from the old Babylonian period onwards since the text says that this fourth string was 'created', *id est* 'corrected' by the god Ea. It is my hypothesis that this godly intervention consisted in the correction of a naturally placed tritone, to consonance. I propose that originally the generative enneatonic scale would have been b-a-g-f-e-d-c-b-a[1] where the interval b-f falls naturally as a tritone. It would have been corrected by the god Ea to a just fourth as thetic b-a-g-f-e-d-c-b-a which is dynamic e-d-c-b-a-g-f-e-d. This pre-supposition is reinforced by the second hypothesis in the next tablet, CBS 10996, where I make the assumption that indeed *Ea's* string, the fourth, would have been marked in some way for that purpose. This thought is further reinforced with my analysis of UET VII 74 which reveals that the principle of the modal Babylonian system rested on the correction of the tritone to consonance. Subsequently it would have been natural for the system to originate from *Ea's* tuning of the fourth string to the exact value of the interval of the fourth, the ratio of *Anu* to *Ea* (3:2 = 60:40).

1 Despite the fact that at this stage of our study on the music of the Ancient Near East it is impossible to determine if the scale was descending as I give it above or even if it were diatonic. The texts which follow confirm my hypothesis. Nevertheless, certain scholars still disagree with the principle that the Akkadians had a descending system.

CBS 10996

Which names the relative positions of 14 intervals

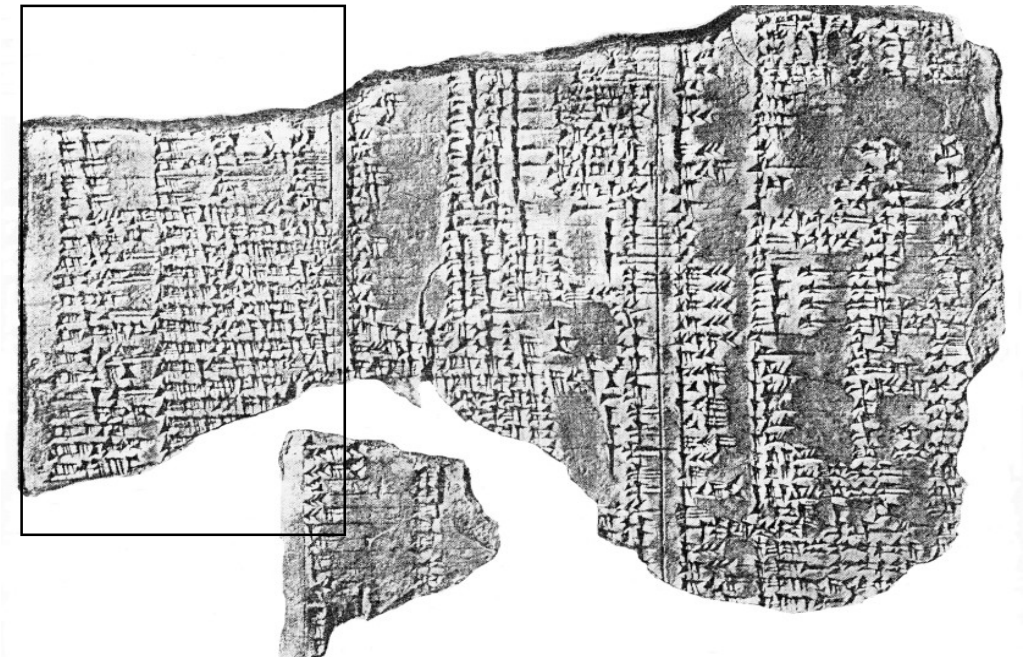


Plate 7, CBS 10996, Cols. i, ii and iii, left column i relevant.

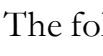
a) History

This tablet was published by Professor Kilmer[1] in 1960. It was found at the site of Nippur and was originally thought to be from the Kassite Period, about 1500 BC. All now agree that it is neo-Babylonian, early first millennium BC, but there again it is possible that this was a copy of a far older text on the basis that the terminology is known from another, UET VII 74, dated *ca.* 1800 BC.

b) Interpretation

This tablet is very damaged but it was possible to reconstruct its contents by extrapolation since there was a reccurence of two numerical patterns. For instance, the second line of the top left of the tablet (which is numbered as line 7, thereafter) has : which are the signs for 6 and 3.

1 Kilmer, A., *Two New Lists for Mathematical Operation*s, Orientalia 29, (1960), 273-308 and Tab. LXXXIII.

The following line has  : which is 3 and 5. Since the following line has 7-4, followed by 4-6, it was possible to derive that the much damaged beginning of line 6, must be 2-4. This revealed the following pattern: 4-1/1-3; 5-2/2-4; 6-3/3-5; 7-4/4-6. The pattern then changes to 1-5/7-5; 2-6/8-6, and so forth. However this is nothing more than the inversion of the first series as in music theory the complement of the fifth 1-5 would be the fourth 4-1 where 1 is either the same note or its octave. Line 7 continues with the sign SA as we have seen in the previous tablet. This is followed by the term, *kit-mu*. At line 11 the pattern changes as it starts with the logogram SA followed by the names of the strings, that is *'string first and string fifth'* and not *'string 1 and string* 5'; followed by the enumeration of the numbers and then by the term to which they equate as we had it from line 6 onwards, *i.e.* 1-5 SA *nīš* GABA.RI. From this it was clear that the terms which followed the numbers were the names given to the intervals. Merit is due to Madame le Docteur Duchesne-Guillemin for her interpretation of this very difficult text which proved to be of considerable importance for our understanding of the Akkadian musical system.

The transliteration and translation from lines 11 to 24 is:

Lines	Akkadian numbers and names	Translation
11	1-5 *nīš* GABA.RI	rise of the equivalent
12	7-5 *šēru*	song
13	2-6 *išartu*	normal, erect
14	1-6 *šalšatu*	third
15	3-7 *embūbu*	reed-pipe
16	2-7 *rebūtu*	fourth
17	4-1 *nīd qabli*	fall of the middle
18	1-3 *isqu*	lot/portion
19	5-2 *qablītu*	middle
20	2-4 *titur qablītu*	bridge of the middle
21	6-3 *kitmu*	closing
22	3-5 *titur išartu*	bridge of the normal
23	7-4 *pītu*	opening
24	4-6 *serdû*	lament

Figure 3, Akkadian list of interval numbers and names from CBS 10996, lines 11-24. Neo-Babylonian.

Duchesne-Guillemin[1] perceived that the numbers preceding the terms represented musical intervals and that subsequently the terms following the numbers were the names for the intervals. For example, line 11 gives the interval of the first to the fifth degree, named *nīš* GABA.RI; line 12, the interval of the seventh to the fifth degree, named *šēru*, and so on. If arbitrarily we take number one as being the note 'c', then lines 11 and 12 would be C-(b-a-g)-F/D-(e)-F, a descending fifth and an ascending third, as we have noted that the system is descending.

The highest number listed in CBS 10996 is seven. Thus we can safely assume that the text was written for a heptachordal instrument. This does not necessarily mean that it responded to a heptatonic system and is why the interval at line 14, for example, is 1-6 when it should have been 8-6, had it been written for the octochord. However one must also consider that because of its nature a diatonic tuning pattern cannot span more than a heptachord without repetition.

c) First hypothesis

If we convert the original broken number sequence of the text to a continuous one, we obtain the following: 1-5/7-5/2-6/8-6/3-7/9-7/4-8/10-8/5-9/11-9/6-10/12-10/7-11/13-11.

String	I	II	III	IV	V	VI	VII
l.11	1 >				5		
l.12					5 <		7
l.13		2 >				6	
l.14	1 >					6	
l.15			3 >				
l.16		2 >					7
l.17	1 <			4			
l.18	1 >		3				
l.19		2 <			5		
l.20		2 >		4			
l.21			3 <			6	
l.22			3 >		5		
l.23				4 <			7
l.24				4 >		6	

Figure 4, schematic representation of CBS 10996, lines 11-24.

1 Duchesne-Guillemin, M. *Découverte d'une gamme babylonienne.* Revue de Musicologie Vol. 49, (Juillet 1963) 3-17.

This pattern spans 13 degrees and hosts 2 distinct types of intervals, each placed on seven different degrees: 7 descending fifths (1-5; 2-6; 3-7; 4-8; 5-9; 6-10, and 7-11) alternating with 7 ascending thirds (7-5; 8-6; 9-7; 10-8; 11-9; 12-10, and 13-11). Each of these paired intervals add up to a seventh (*i.e.* 1-5/7-5 = 1-7, a descending seventh).

The reconstructed pattern of intervals holds the clue as to their relative pitch. If it is to be presumed that the descending fifths were taken as just, then the lowest note (11) of the last descending fifth (7-11) would conflict with its upper octave (number 4) by the quantity of one semitone, for reasons of diatonism, making of this octave an augmented one. They would have had to make of this last fifth a tritonic one in order to preserve the quality of the octave (1-8). Its quality would have prevailed on that of the fifth. It is the very structure of diatonism which dictated the span of the system, to 13 notes, hosting 6 descending fifths and one descending tritone; three ascending major and four descending minor thirds. It is therefore possible to derive that note 1, in the present text, was an 'e'. The last descending fifth would have been f-b, a tritone which brought the series to an end in agreement with my epitome about the first tablet.

notes	1	2	3	4	5	6	7	8	9	10	11	12	13
l.11	1>				5								
l.12					5<		7						
l.13		2>				6							
l.14						6<		8					
l.15			3>				7						
l.16							7<		9				
l.17				4>				8					
l.18								8<		10			
l.29					5>				9				
l.20									9<		11		
l.21						6>				10			
l.22										18<		12	
l.23							7>				11		
l.24											11<		13

Figure 5, schematic reconstruction of CBS 10996, lines 11-24.

This descending scale, ancestor of the doric scale species, would have measured, in cents: 1200, 996, 792, 702, 498, 294,90, 0. It is our descending scale of 'e':e-d-c-b-a-g-f-e.

d) Second hypothesis

We do not know how the tablet ended since it was broken after line 24 but an educated guess induced by the Akkadian terms *nīš* GABA.RI, (Line 11: 1-5 *nīš* GABA.RI, = 'rise of the duplicate') led me to perceive that line 25 could have had 8-12 (1-5) and the next 14-12 (7-5), thus the term 'rise of the duplicate' for line 25, as it has risen its duplicate by the value of one octave. However it is reasonable to assume that the list ended at line 24 because there is no reason for it to have continued any further. The first five lines, (6-10) would have read as 2-4, 6-3, 3-5, 7-4 and 4-6 so we have no reason to believe that missing lines 5, 4 and 3 would have been other than 5-2, 1-3, and 4-1 respectively, on the basis of extrapolation given that the pattern in lines 3-10 is identical to that in lines 17-24. Subsequently line 10 would be 4-6 SA *zerdum*; line 9, 7-4 SA *pītum*. Line 6 can safely be extrapolated as 2-4 SA *titur qablītim*, line 5 as 5-2 SA *qablītim*; line 4 as 1-3 SA *isqum*; and line 3 as 4-1 SA *nīd qablim*. Line 3 would have been the first line of the sequence.

Therefore, column i of CBS 10996 can be reconstructed as follows:

line	interval	name	value
3.	4-1	*nīd qablim*	(B-c-d-E)
4.	1-3	*isqum*	(E-d-C)
5.	5-2	*qablītum*	(A-b-c-D)
6.	2-4	*titur qablītum*	(D-c-B)
7.	6-3	*kitmum*	(G-a-b-C)
8.	7-4	*titur išartum*	(C-b-A)
9.	7-4	*pītum*	(F-g-a-B)
10.	4-6	*zerdum*	(B-a-G)

line	interval	name	value
11.	1-5	*nīš* GABA.RI	(E-d-c-g-A)
12.	7-5	*šerum*	(F-g-A)
13.	2-6	*išartum*	(D-c-b-a-G)
14.	1-6	*šalšatum*	(E-f-G)
15.	3-7	*embūbum*	(C-b-a-g-F)
16.	2-7	*rebūtum*	(D-e-F)
17.	4-1	*nīd qablim*	(B-a-g-f-E)
18.	1-3	*isqum*	(C-d-E)
19.	5-2	*qablītum*	(A-g-f-e-D)
20.	2-4	*titur qablītum*	(B-c-D)
21.	6-3	*kitmum*	(G-f-e-d-C)
22.	3-5	*titur išartum*	(A-b-C)
23.	7-4	*pītum*	(F-e-d-c-^{b}B)
24.	4-6	*zerdum*	(G^{b}-a-B^{b})

Figure 6, reconstruction of CBS 10996, lines 3-24. Old Babylonian rendition.

The text shows two distinct sequences firstly from lines 3 to 10 and secondly from line 11 to 16. Lines 17 to 24 repeat lines 3 to 10.

It will come as no surprise that the sequence starts with the fourth string since it is (D's. If we assume that the top note was 'e', for the reasons already explained, then we have 4-1 = b-e, a fourth being the most distinguishable interval. The next line has 1-3, a third. Now this interval is a difficult one to perceive and so would not have been mentioned in the text for the purpose of its tuning[1] but to guide the musician towards the fingering for the next interval (5-2). This would have been both a digital and a visual exercise.

1 I do not believe, unlike certain of my colleagues, that thirds would have had any function in the tuning process simply because their combinational beats would not have been sufficiently audible due the poor sustain quality in harps in general. Even today, our great 42 string concert instruments are never accurately tuned for the same reason. The thirds would have been given because they would have been a practical means of distinction between the intervals of fourths and fifths, and sixths and sevenths, a guide to the position of the fingers on the strings of the instruments. A fifth consists of two consecutive thirds, and a seventh of three consecutive thirds. A fourth is a fifth minus one note and a sixth is a seventh minus one note.

Assuming that *Ea*'s string, the fourth, was marked in some way - it is likely that it had been coloured - the interval of the fourth (4-1) would have been simple enough to position. It ran from *E*a's string to the first.

Had the musician placed his thumb on the first string he would then have skipped a string to reach string three which hosted the third in relation to string one and skipped another after to reach string 5 which is the first member of the third interval of the list (5-2). The interval between the first member of the second interval (1-3) and the first member of the third interval is a fifth (1-5) being the second most distinguishable interval. Then the intervals of the fourth and the fifth would have been compared one to another. The difference between them producing the tone.

The first three lines of the text would thus have produced the upper pentachord of the enneatonic system: e-d-c-b-a. A second junct descending pentachord would follow, identical in structure: a-g-f-e-d, to shape the generative enneatonic scale: e-d-c-b-a-g-f-e-d.

The lines of the first sequence 3 -10 provide a practical tuning pattern with proofs.

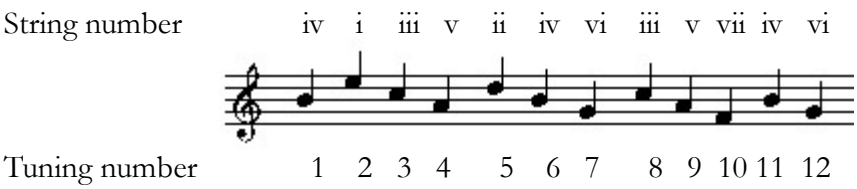


Figure 7, transcription of CBS 10996.

The notation above shows this very clearly. The Roman numerals indicate the number of the string whilst the Arabic numerals give the order in which the strings are listed in the first sequence of the text.

The first note tuned would have been 'b' placed on string IV. It is possible that it would have been tuned from a fixed note taken from a flute used as standard pitch. However, we have no evidence of such a practice. The second note tuned would have been the first string, 'e', a perfect fourth. This would not have presented any problem as this interval is the most recognisable of all as has already been mentioned.

Whilst the tuning of the next string is impossible to quantify for we cannot say if it was a major or a minor third, it would have stood in the middle of the interval of the fifth which comes next, being strings I-V and tuning numbers 2-4. The interval of the just fifth is the second most recognisable interval and being placed where it is in the tuning process would not have allowed for any confusion with the perfect fourth. The next string to be tuned would have been the second, tuning number 5. This is a perfect fourth. The player would then have compared its quality with that of the first fourth of the tuning sequence (IV-I). The tuning would then have continued on this principle until arriving at string three, for the second time (tuning number 8). This third string did not establish its exact value in the third tuning operation as there was nothing to tell whether it were to be taken as either major or minor. However, the fact that it is now tuned from a fifth (g-c) would have made of it a major third (e-c). Similarly, the sixth note of the tuning operation leading to 'b' would equate to the first note tuned, as a unison, and as a just fourth from the second note tuned, thus constituting a proof of justness. Other proofs would arise from the tuning process to confirm the respective values of the thirds until the eleventh tuning operation. There would have been a temptation to tune it as a 'b flat ' because a fourth naturally falls there but the nature of the diatonic scale ensures that it had to be a natural 'b' producing a tritone in order to match with its octave, *Ea*'s string, the first string tuned. This explains the reason for the deity's intervention in relation to the tritone.

e) Philology

The Sumerian logogram SA which equates to Akkadian *pitnu* was seen to name strings in tablet UET VII 126. In the present tablet, it may have been used to designate intervals. It is therefore possible to assume that it also named isolated notes since it names strings which generate such notes. Whilst the term SA is not a recognised determinative *per se* it probably was one, in respect of music theory and practice.

f) Epitome

This text fulfils two purposes. Firstly it names seven positions for two distinct intervals, the descending fifth and the ascending third within a hypothetical 'perfect' system of 13 degrees. It further shows that in the case of heptachordal instruments, where certain intervals have to be inverted in order to fit in with a restricted span, these intervals kept designed for heptachordal instruments, in the first sequence and the last (lines 3-10 and 17-24), based on the alternation of descending fourths and ascending fifths with complementary thirds. The middle section, lines (11-16), would have been a tuning method originally devised for the enneachord and consists of descending fifths and ascending fourths with complementary thirds shown here in a version adapted for the heptachord.

UET VII 74

Which explains the formation of the Babylonian scale system

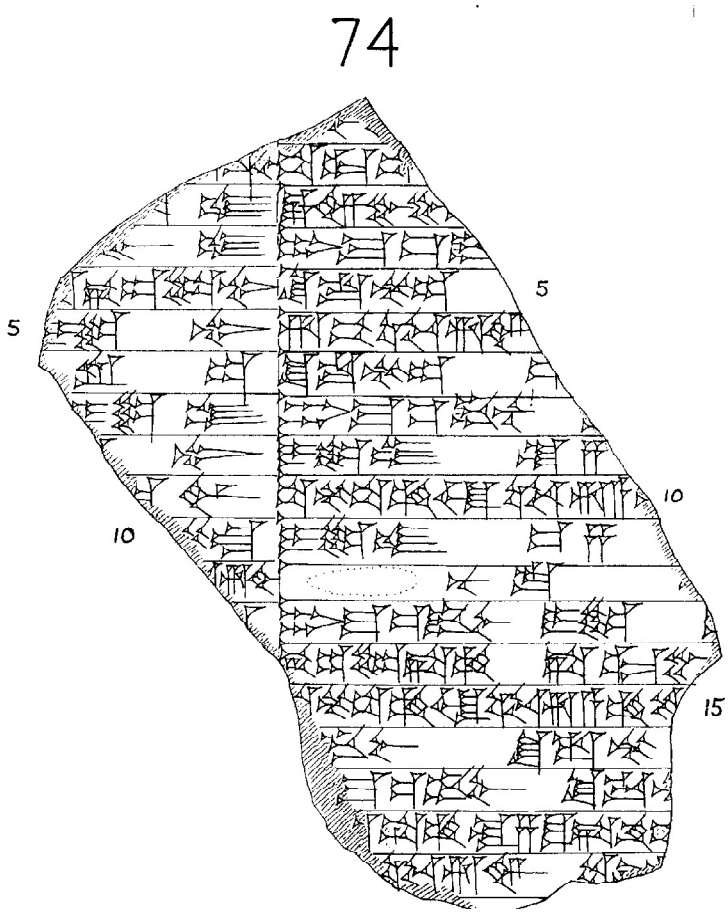


Plate 8, Gurney's copy of UET VII 74, left and right columns[1].

a) History

This third tablet dates from the old Babylonian period, about 1800 BC. It was unearthed by Sir Leonard Woolley at Ur and was published about forty years later in 1968[2] by Professor Gurney. At that time no scholar had yet hypothesised that the scale may be descending. Consequently, Gurney's paper was presented with the assumption that the system was ascending.

1 *Ur Excavation Texts. Op.cit.*
2 Gurney, O.R., *An Old Babylonian Treatise on the Tuning of the Harp,* IRAQ XXX, (1968), 229-233.

Then in 1982, Vitale[1] saw things in a descending fashion but was not taken seriously until the Leiden Assyriologist Th.J.H. Krispijn proposed the correction of Gurney's reading of line 12 as *nu-su-ḫ[u-um* the D. infin. of the verb *nasāḫum*, 'to tighten'.

b) The right column: Interpretation

This new term, *nasāḫum*, Sumerian gíd-i, or *nussuḫum*, Sumerian zi-zi, is the technical verb for 'to tighten' strings. Its antonym is *ne'ûm*, Sumerian tu-lu. Enlightened by Krispijn's paper, Gurney published another in 1994 in which he offered the following transliteration[2]:

[šum-ma ^{giš}ZÀ.MÍ *pi-i-tum-ma]*
1 *[e-e]m-b[u-bu-um la za-ku]*
2 *ša-al-š[a-am qa-at-na-am tu-na-sà-aḫ-ma]*
3 *e-em bu-bu-u[m iz-za-ku]*
4 *šum-ma* ^{giš}Z]À.MÍ *e-em-bu-bu-um-ma]*
5 *ki-it-mu-um [la za-ku]*
6 *re-bi úḫ-ri-im [tu-na-sà-aḫ-ma]*
7 *ki-it-mu-um i[z-za-ku]*
8 *šum-ma* ^{giš}ZÀ.MÍ *k[i-it-mu-um-ma]*
9 *i-šar-tum la za-[ka-at]*
10 *ša-mu-ša-am ù-úḫ-ri-a-a[m tu-na-sà-aḫ-ma]*
11 *i-šar-tum iz-za-[ku]*
12 *nu-su-ḫ[u-um]*
13 *šum-ma* ^{giš}ZÀ.MÍ *i-šar-t[um-ma]*
14 *qa-ab-li-ta-am ta-al-pu-[ut]*
15 *ša-mu-ša-am ù-úḫ-ri-a-am te-[ni-e-ma]*
16 [^{giš}]ZÀ.MÍ *ki-it-mu-[um]*
17 *[šum]-ma* ^{giš}ZÀ.MÍ *ki-it-m[u-um-ma]*
18 *[i-ša]r-ta-am la za-ku-ta-am t[a-al-pu-ut]*
19 *[re-bi] úḫ-ri-im te-ni-e![-ma]*
20 [^{giš}ZÀ.MÍ *e-em-bu-bu-um]*

Figure 8, transliteration of UET VII 74, right column.

1 Vitale, R., *La musique suméro-accadienne, gamme et notation musica*le, UGARIT-FORSCHUNGEN 9, 1982), 241-265.
2 Gurney, O.R., *Babylonian Music Aga*in, IRAQ LVI, (1994), 101-106.

First chapter

1. When the harp is tuned in the scale of *išartum*
the tritone placed between degrees 5 and 2 is *qablītum*
tune up by a semitone degree 5
then the harp will be tuned in the scale of *qablītum*

2. When the harp is tuned in the scale of *qablītum*
the tritone placed between degrees 1 and 5 *nīš* GABA.RI
tune up by a semitone degrees 1 and 8
then the harp will be tuned in the scale of *nīš* GABA.RI

3. When the harp is tuned in the scale of *nīš* GABA.RI
the tritone placed between degrees 4 and 1 is *nīd qablim*
tune up by a semitone degree 4
then the harp will be tuned in the scale of *nīd qablim*

4. When the harp is tuned in the scale of *nīd qablim*
the tritone placed between degrees 7 and 4 is *pītum*
tune up by a semitone degree 7
then the harp will be tuned in the scale of *pītum*

5. When the harp is tuned in the scale of *pītum*
the tritone placed between degrees 3 and 7 is *embūbum*
tune up by a semitone degree 3
then the harp will be tuned in the scale of *embūbum*

6. When the harp is tuned in the scale of *embūbum*
the tritone placed between degrees 6 and 3 is *kitmum*
tune up by a semitone degree 6
then the harp will be tuned in the scale of *kitmum*

7. When the harp is tuned in the scale of *kitmum*
the tritone placed between degrees 2 and 6 is *išartum*
tune up by a semitone degree 2 and 9
then the harp will be tuned in the scale of *išartum*

Second chapter

1. When the harp is tuned in the scale of *išartum*
the tritone placed between degrees 5 and 2 is *qablītum*
tune down by a semitone degrees 2 and 9
then the harp will be tuned in the scale of *kitmum*

2. When the harp is tuned in the scale of *kitmum*
the tritone placed between degrees 2 and 6 is *išartum*
tune down by a semitone degree 6
then the harp will be tuned in the scale of *embūbum*

3. When the harp is tuned in the scale of *embūbum*
the tritone placed between degrees 6 and 3 is *kitmum*
tune down by a semitone degree 3
then the harp will be tuned in the scale of *pītum*

4. When the harp is tuned in the scale of *pītum*
the tritone placed between degrees 3 and 7 is *embūbum*
tune down by a semitone degree 7
then the harp will be tuned in the scale of *nīd qablim*

5. When the harp is tuned in the scale of *nīd qablim*
the tritone placed between degrees 7 and 4 is *pītum*
tune down by a semitone degree 4
then the harp will be tuned in the scale of *nīš* GABA.RI

6. When the harp is tuned in the scale of *nīš* GABA.RI
the tritone placed between degrees 4 and 1 is *nīd qablim*
tune down by a semitone degrees 1 and 8
then the harp will be tuned in the scale of *qablītum*

7. When the harp is tuned in the scale of *qablītum*
the tritone placed between degrees 1 and 5 is *nīš* GABA.RI
tune down by a semitone degree 5

Figure 9, translation of the reconstruction of UET VII 74.

The text is divided at line 12 in two distinct cycles consisting of quatrains. Each quatrain in the first cycle follows the following pattern:

a) When the harp is tuned in the scale of A,
b) you have a tritone between degrees X and Y.
c) Tighten the string X by a semitone
d) and your harp will thus be tuned in the scale of B.

and each quatrain in the second cycle:

a) When your harp is tuned in the scale of A,
b) You have a tritone between degrees X and Y
c) Tune down string Y by a semitone
d) and your harp will be tuned in the scale of B.

It was on the basis that the first chapter ended by the scale of *išartum*:

8 *šum-ma* ^{giš}ZÀ.MÍ *k[i-it-mu-um-ma]*
9 *i-šar-tum la za-[ka-at]*
10 *ša-mu-ša-am ù-úḫ-ri-a-a[m tu-na-sà-aḫ-ma]*
11 *i-šar-tum iz-za-[ku]*

and that the second chapter started by the same scale . . .

13 *šum-ma* ^{giš} ZÀ.MÍ *i-šar-t[um-ma]*
14 *qa-ab-li-ta-am ta-al-pu-[ut]*
15 *ša-mu-ša-am ù-úḫ-ri-a-am te-[ni-e-ma]*
16 [^{giš}]ZÀ.MÍ *ki-it-mu-[um]*

. . . that most scholars assumed that the first chapter must also have started with the same scale. That this scale, *išartum*, was the enneatonic diatonic descending genus, mode of C, was made clear from the tuning indications given in the quatrains that precede the last one in the first chapter and alsoon the basis that CBS 10996 had produced seven names ofintervals which would have been common to seven scales.

Thus the first chapter of the text would have had seven quatrains arranged in the following order: *išartum - qablītum - nīš* GABA.RI - *nīd qablim - pītum - embūbum - kitmum* which ends by *išartum*.

The second chapter mirrored the first one.

c)First hypothesis.

It is surprising that the text does not start with the enneatonic descending genus, mode of E, *nīd qablim*. This was the scale which I assumed as fundamental as a result of the tuning from the fourth string, *Ea*'s, as we have seen from the two preceding texts UET VII 126 and CBS 10996.

Tablet UET VII 74 in its present state does not allow for any objective conclusion to be drawn that either its first chapter started or that its second one ended with the same scale of *išartum*. Anyway, this scale of C taken either ascending or descending would not have been a good choice with which to start a modal system because it is not the result of a natural tuning pattern consisting of alternating fifths and fourths. An ascending tuning pattern, stemming from F, for instance, would procede as:

f>				c			
	g <			c			
	g >				d		
		a <			d		
		a >				e	
			b <			e	
			b trito ne				f
f			o c t a v e				f

Figure 10, ascending paradigm for UET VII 74

. . . resulting in: f-g-a-b-c-d-e-f.

A descending tuning pattern of alternating fifths and fourths stemming from B would procede as:

			b >			e	
		a <				e	
		a >			d		
	g <				d		
	g >			c			
f<				c			
f	trito n e		b				
			b		o c t a v e		b

Figure 11, descending paradigm for UET VII 74

. . . resulting in the following paradigm: b-a-g-f-e-d-c-b.

Thus assuming that UET VII 74 started as Gurney saw it we must find the reason behind it.

> Now the enneatonic diatonic descending genus, *išartum*:
>
> c b a g f e d c b
>
> consists of two junct pentachords:
>
> c b a g f and: f e d c b
>
> containing two octochords:
>
> c b a g f e d c and b a g f e d c b

This is precisely where the answer lies. The structure of the enneachord shows that its topmost note would have been an added entity. Thus *išartum* should be taken as a descending scale of B with added 'c' at the treble - a form of anacrusis.

Following this premise, the position of the tritone makes sense being placed at the top of the scale of descending B, degrees IV-I = b-f. However, the text insists that the system is enneatonic as it numbers top 'c' as the first string of the system. Consequently, the tritone is shifted onto strings V-II. It follows that the mode of *išartum* is not a descending scale of C but a descending scale of B with an added anacrusis 'c' at its top; *qablītum* is not a descending scale of F but a descending scale of E with an added 'f ' at its top and so forth. The mode system in UET VI 74 should thus be read, in the dynamic[1], as:

1	*išartum*	[c]B a g f e d c b
2	*qabīltum*	[f]E d c ba g f e
3	*nīš* GABA.RI	[b]A g f e d c b a
4	*nīd qablim*	[e]D c b a g f e d
5	*pītum*	[a] G f e d c b a g
6	*embūbum*	[d]C b a g f e d c
7	*kitmum*	[g] F e d c b a g f

It is more appropriate, however, to use the thetic[2] notation because this is precisely how it would have sounded. Figure 12 below renders the first chapter of the text. The second chapter mirrors the first one. Note 'b' is obviously the tonic note of the system as it is the last one to be sharpened at the end of the sequence. The 'c' which precedes is therefore confirmed as the anacrusis of the genus.

1 The word dynamic indicates that the scale is transposed to facilitate its reading.

2 Thetic which stems from *thetikos*, 'such as is placed' indicates that the scale is written down as it was intended.

It can thus be advanced that the enneatonic diatonic descending scale of C , with 'b' as tonic is the genus from which the Babylonian modes are generated.

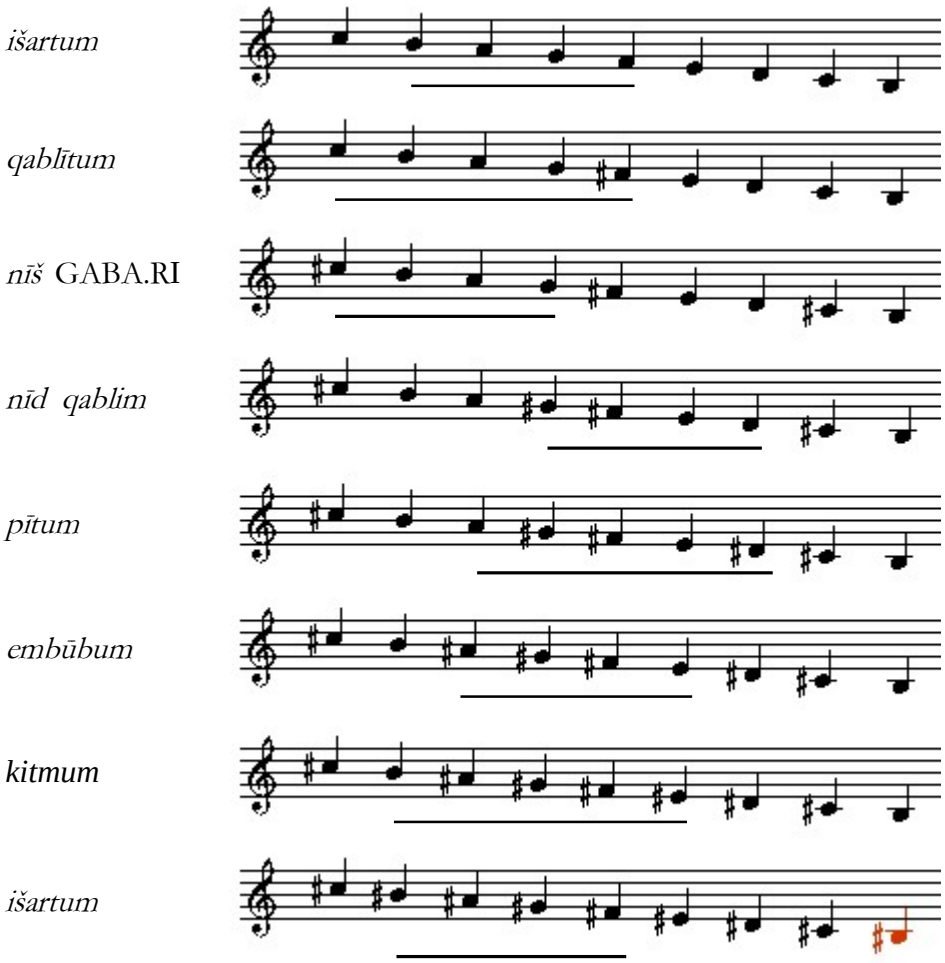


Figure 12, Notation of the old Babylonian modal system.

d) Second hypothesis: tonometry

It has been shown above that the scale of *išartum* was the generative paradigm stemming from a descending tuning pattern consisting of descending fifths and ascending fourths starting from the note of the second string of the *sammû*-instrument.

As a result of the characteristics of the tuning pattern this note must be a 'b' to which we cannot assign a specific pitch. However, while it is not logical, *per se*, to assume that they used just fifths and fourths, it is highly probable that they did soon the basis that these intervals

occur naturally and, on the premise of my hypothesis about the musical function of the god numbers, the interval of the fifth would have been defined by the ratio of 60:40. The figure of 60 may have equated to the size of one Sumerian KÙŠ = Akkadian *ammatum*, the 'cubit', *i.e.* about 50 centimetres[1]. This would have been the referential speaking length of a free string on the lute taken as an approximation from the iconography. Now it does not follow that the generative scale obtained by the tuning method described above would have resulted in an arrangement of perfect fifths and fourths of its degrees, since this would have depended on different factors: firstly, the *sammû*-harp would have had to provide with sufficient sustain for the harpist to judge of the quality of the fifths or the fourths in the process of tuning; secondly, it is not assumable that the instrumentalists had observed, or took as a rule that a fifth or a fourth are just intervals only when interferential beats generated by both strings, when vibrating simultaneously, have ceased. This is particularly relevant if the 'standard' was derived from the ratios of the figures of 60 and 40 on the lute, as the tonic and the dominant would not have been sounded simultaneously but successively, because a fretted monochord cannot allow for two sounds, from the same string, to be played together.

The quality of the tuning of an instrument is a subjective matter especially when there is no reference. This would have been the case at that period of antiquity when endemism is expected. This is how regionalisms came into being: various modes would have resulted from variations of the leading musician's tonal perception, or inclinations. Students and adepts would have taken these variations for granted, even if it did not satisfy them at first. This is one of the consequences of education. However we can expect the genus to be built up of just fifths and fourths or that this was the original intention. In this respect, the descending enneatonic diatonic genus *išartum* would have been, in cents:

I	II	III	IV	V	V I	V II	V III	IX
1290	1200	996	792	588	498	290	90	0

1 Dalley, S., *Basic Akkadia*n. *An Introductio*n. (Oxford, 1985), 87.

I have measured the octave of the paradigm from note 'b' and not 'c' on the grounds that I consider that 'c' is anacrusic, despite the fact that the system is enneatonic. Furthermore this method will make comparative analysis easier. However, tablet KAR 158, that we shall see later, tells us that there were certain *irātu*-songs which were sung in the Akkadian *išartum* mode. This was probably one of the regionalisms referred to earlier but it would have been more understandable to see other modes than the generative one offering such variations. From this Akkadian variation, it is possible to speculate that there were more than one genera in the Babylonian system.

Mode of *išartum*

I	II	III	IV	V	V I	V II	V III	IX
1290	1200	996	792	588	498	294	90	0

In this paradigm, which is the equivalent of the Greek Mixolydian or the medieval Arabian *Abu salik*, all fourths measure 498 cents excepting that of II to V which is a tritone with 612 cents complementing the tritonic fifth, 588 cents, that we have between V and IX since 612 + 588 = 1200. The value of this tritonic fifth was known to medieval Arab theoreticians as an ancient position of the index finger on the second string, the *mithlath*. All fifths measure 702 except for the last one between V and I which is tritonic and measures 588. It approximates the ratio of the natural 45th harmonic, 45:32 = 590. This is a fourth as widened for passing into the key of the dominant (498 + 92 = 590). The value of 92 cents results from the ratio of 135:128. This is the larger *limma* or the defect of a fourth, 498 cents, increased by a diatonic semitone, 112 cents, (= 610 cents) from a fifth, 702 cents, hence the interval by which the fourth must be sharpened to be a diatonic semitone below, being the 'leading note' to the fifth. Furthermore being the interval by which the fourth is sharpened on modulating into the dominant, 92.179 cents. It would be reasonable to assume however that the Babylonians used the *apotomē*, 114 cents, instead of the diatonic semitone, 112 cents, because this is what they would have obtained as the 'cut-off ' of what is left of the major tone, 204 cents, after 'cutting-off'

the *limma*, 90 cents, which occurs naturally in the generative paradigm.

If we refer to my hypothesis of the musical value of the god numbers then while the ratio between, *Ištar* and *Bel Marduk*, 15:14 produces 119.44281 cents, the ratio between *Anu*'s second number, 21 and *Šamaš's* 20 produces 84.46719. They amount to 203.91cents which is exactly the value of the ratio 9:8, which is the tone. This was the Babylonian synthesis of the tone.

In the paradigm of *išartum*, we have the following thirds: 294 cents, ratio of 32:27. This is the Pythagorean minor third. It was known as the 'ancient middle finger' on the Arabian lute; 408 cents, ratio of 81:64, the Pythagorean major third, or the ditone as it consists of two major tones of 204 cents, and was also the Arab medieval *binṣir*. The tones are of 204 cents and the semitones 90. The sixths: 792, ratio of 128:81 which is the Pythagorean minor sixth; 906, ratio of 27:16, the Pythagorean major sixth. The sevenths: 996, ratio of 16:9 which is the minor seventh and 1110, ratio of 243:128, which is the Pythagorean major seventh. The value of 1110 does not appear in the medieval Arab system[1].

It is impossible to speculate on the values by which the strings had to be raised in the rest of the text on the grounds that modes, as I have explained earlier, are usually subjected to atypical endemic variations which therefore exclude just fifths and fourths. Nevertheless, I now list them firstly on the premise that the quantity by which strings had to be raised was 90 cents and secondly on the premise that this quantity was 114 cents.

Tunings with corrections of 90 cents

The scale of *qablītum* consists in the scale of *išartum* with its string V raised by 90 cents:

Mode of *qablītum*

I	II	III	IV	V	V I	V II	V III	IX
1290	1200	996	792	678	498	294	90	0

1 Prof. Land, however reported the value of 1110 cents as a fret on the Northern *ṭunbur* of *Ḫurassan*. *In Recherches sur l'histoire de la gamme arab*e, Congrès des Orientalistes, (Leyden 1883).

We have semitones of 90 and 114 cents which have been discussed earlier. A new quantity of 180 cents appears between V and VI. This interval is known as Abdulqadir's substitute for Zalzal's 168 cents and equates to the ratio of 65536:59049. In addition to the just fourth this mode offers a tritone at 588 and an acute fourth at 522. There is a pentachordal tritone of 612 cents and a peculiar fifth of 678, ratio of 262144:177147, which is known as Abdulqadir's substitute for 666 cents, being a fourth above 180.

Mode of *nīš* GABA.RI

The scale of *nīš* GABA.RI consists in the scale of *qablītum* with its strings I and VIII raised by 90 cents. Note that the span of this mode is 1380 cents as differing from the preceding modes which spanned 1290:

I	II	III	IV	V	VI	VII	VIII	IX
1380	1200	996	792	678	498	294	180	0

We have here a third placed between I and III, 380, a ratio of 8192:6561. This is Abdulqadir's substitute for 355 cents. We have a sixth between I and VI which measures 882 cents, a ratio of 32768:19683. Another of Abdulqadir's substitute for Zalzal's 853 being a fourth above 384 cents. We have another atypical sixth between III and VIII with 816 cents. It is higher by 2 cents than the minor sixth. There is a seventh between I and VII measuring 1086 which is lower by 2 cents than the just major seventh.

Mode of *nīd qablim*

The scale of *nīd qablim* consists in the scale of *nīš* GABA.RI with its string IV raised by 90 cents:

I	II	III	IV	V	VI	VII	VIII	IX
1380	1200	996	882	678	498	294	180	0

All the intervals in this mode are known from preceding ones.

Mode of *pītum*

The scale of *pītum* consists in the scale of *nīd qablim* with its string VII raised by 90 cents:

I	II	III	IV	V	VI	VII	VIII	IX
1380	1200	996	882	678	498	384	180	0

All the intervals in this mode are known from preceding ones.

Mode of *embūbum*

The scale of embūbum is the scale of *pītum* with its string III raised by 90 cents:

I	II	III	IV	V	V I	V II	V III	IX
1380	1200	1086	882	678	498	384	180	0

All the intervals in this mode are known from preceding ones.

Mode of *kitmum*

The scale of *kitmum* is the scale of *embūbum* with its string VI raised by 90 cents:

I	II	III	IV	V	V I	V II	V III	IX
1380	1200	1086	882	678	588	384	180	0

All the intervals in this mode are known from preceding ones.

The last mode *išartum* is the first one of the series but a semi-tone higher throughout.

Tunings with corrections of 114 cents

Mode of *išartum*

I	II	III	IV	V	V I	V II	V III	IX
1290	1200	996	792	588	498	294	90	0

Mode of *qablītum*

The scale of *qablītum* consists of the scale of *išartum* with its string V raised by 114 cents.

I	II	III	IV	V	V I	V II	V III	IX
1290	1200	996	792	702	498	294	90	0

Mode of *nīš* GABA.RI

The scale of *nīš* GABA.RI consists in the scale of *qablītum* with its strings I and VIII raised by 114 cents.

I	II	III	IV	V	V I	V II	V III	IX
1404	1200	996	792	702	498	294	204	0

Mode of *nīd qablim*

The scale of *nīd qablim* consists in the scale of *niš* GABA.RI with its string IV raised by 114 cents.

I	II	III	IV	V	V I	V II	V III	IX
1404	1200	996	906	702	498	294	204	0

Mode of *pītum*

The scale of *pītum* consists in the scale of *nīd qablim* with its string VII raised by 114 cents.

I	II	III	IV	V	V I	V II	V III	IX
1404	1200	996	906	702	498	408	204	0

Mode of *embūbum*

The scale of *embūbum* consists in the scale of *pītum* with its string III raised by 114 cents.

I	II	III	IV	V	V I	V II	V III	IX
1404	1200	1110	906	702	498	408	204	0

Mode of *kitmum*

The scale of *kitmum* consists in the scale of *embūbum* with its string VI raised by 114 cents.

I	II	III	IV	V	V I	V II	V III	IX
1404	1200	1110	906	702	612	408	204	0

String	I	II	III	IV	V	VI	VII	VIII	IX
išartum	1290	1200	996	792	588	498	294	90	0
qablītum	1290	1200	996	792	678	498	294	90	0
nīš GABA.RI	1380	1200	996	792	678	498	294	180	0
nīd qablim	1380	1200	996	882	678	498	294	180	0
pītum	1380	1200	996	882	678	498	384	180	0
embūbum	1380	1200	1086	882	678	498	384	180	0
kitmum	1380	1200	1086	882	678	588	384	180	0
išartum 1	1380	1290	1086	882	678	588	384	180	90

String	I	II	III	IV	V	VI	VII	VIII	IX
išartum	1290	1200	996	792	588	498	294	90	0
qablītum	1290	1200	996	792	702	498	294	90	0
nīš GABA.RI	1404	1200	996	792	702	498	294	204	0
nīd qablim	1404	1200	996	906	702	498	294	204	0
pītum	1404	1200	996	906	702	498	408	204	0
embūbum	1404	1200	1110	906	702	498	408	204	0
kitmum	1404	1200	1110	906	702	612	408	204	0
išartum 1	1404	1314	1110	906	702	612	408	204	114

Figure 13, old Babylonian, modal system expressed in cents.

The last mode, *išartum* is the same as the first but a semitone of 114 cents higher throughout.

It is self evident that the accuracy given in the figures above is the result of theoretical tone handling and it is doubtful that such precision was ever rendered on any instrument some thousands of years ago. This even applies to the modern instrumentarium where certain instruments have particular notes which cannot be tuned to our modern equal temperament. Ask your piano tuner of his dilemma when he has to prepare a piano destined to accompany a clarinet. This is a difficult task which ends in unsatisfactory compromises on both sides. There would have been two distinct schools of thought which ran concurrently and which would have stemmed from two distinct stringed instruments: unfretted and fretted. They would most certainly have referred to unfretted instruments on which each note is generated by its own string, such as harps and lyres, or aimed at just consonances of fifths and fourths or their perception or inclinations of what was felt to be appropriate fifths and fourths.

Such instruments would allow for the two members of their intervals to be sounded simultaneously, and that the generative tuning would arise from such a principle. It is from this type of instrument that the ascending scale of F and the descending scale of B come with 0-204-408-612-702-906-1110-1200 and 1200-996-792-588-498-294-90-0 respectively. In other terms, the so-called Pythagorean system. Fretted instruments, which in the antiquity are solely represented by the lute type, do not operate in the same fashion as one string cannot generate simultaneous sounds. Of course, two open strings would have been sounded together for the purpose of tuning them one to another. However, this would not have determined the size of the frets or the position of fret marks along the neck of the instrument. On such instruments, the maker needed to rely on a standard and, in the case of Babylonian music, I hypothesise that this was provided with god numbers as they would have served this purpose most appropriately.

As figure 14 below shows, god-numbers would have provided the octave and the fifth. The fourth would naturally result from the ratios of 40:30 = 498 cents. The interval of the fifth: 60:40, 702 cents, would subdivide into two thirds, the first one: 60:50 = 316 cents, a minor one, and 50:40 = 386, a major one. There are numbers such as 15 and 14, for *Ištar* and *Bel Marduk*, respectively; 21 and 20, for *Anu's* second number and for *Šamaš*, respectively. The ratio 15:14 = 60:56 = 119 cents which is the Babylonian *apotomē*. The ratio 21:20 = 85 cents which is the Babylonian *limma*. The sum of both amount to 204 cents which is the Pythagorean tone. From the above figure we see that 60 - 56 = 4.

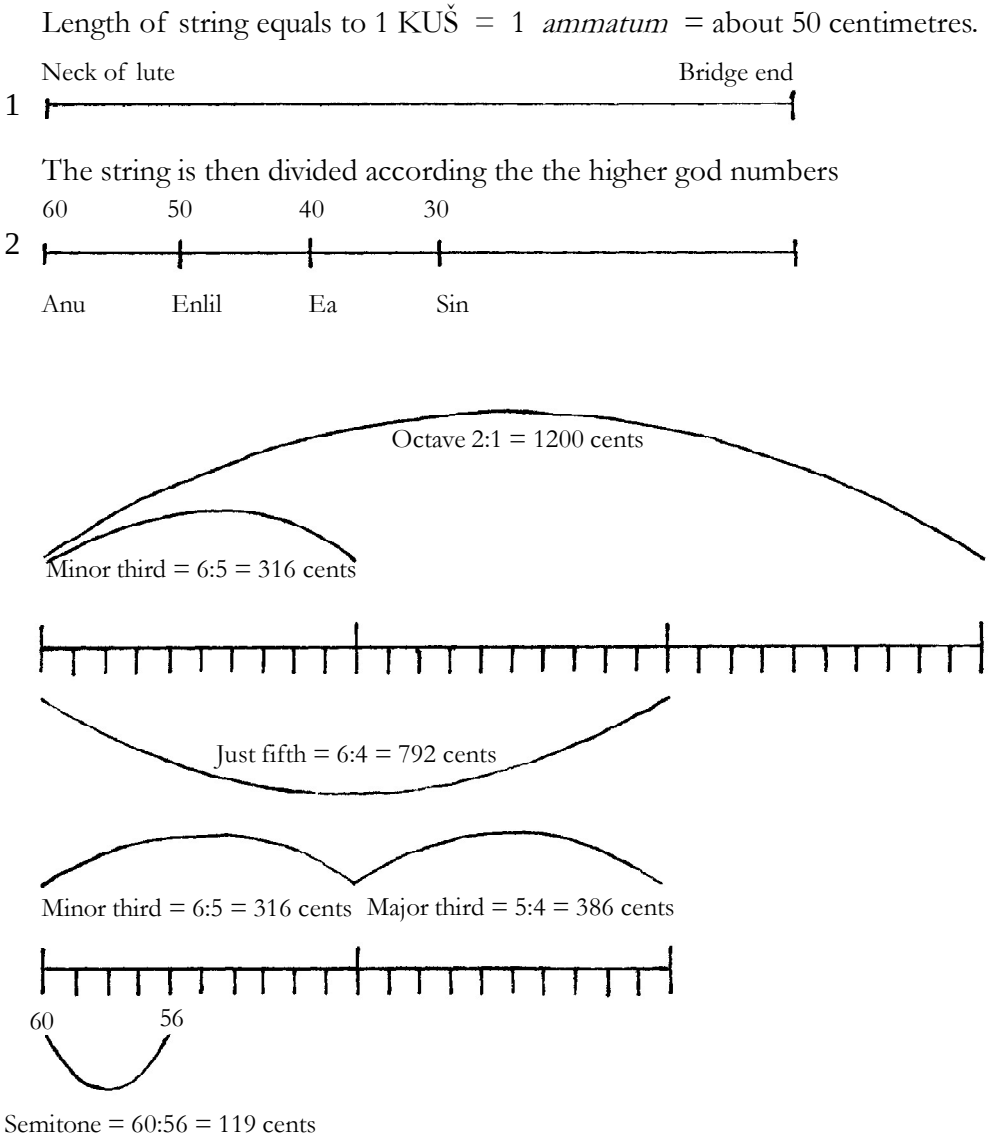


Figure 14, schematical rendition of the god numbers.

If we divide the speaking length which we have arbitrarily estimated as 50 centimetres - as it is the average observed from the iconography and because it conveniently amounts to one Sumerian KÙŠ or one Akkadian *ammatum* - by 60 and multiply the quotient by 4, we obtain 3.33 millimetres, which is the value of 2 Babylonian 'fingers', two *ubanātu*, which equates to the Babylonian *apotomē* = 119 cents.

Certain scholars have argued that my hypothesis is unfounded because the Akkadian god-numbers do not provide figures for the tone ratio. I will argue that neither does CBS 10996 where the tone only appears as the quotient of the subtraction of the fourth away from the fifth. On the other hand CBS 10996 abounds with minor and major thirds as well as fifths and fourths as a complete match with the god numbers.

The reason for this resides in the pentatonic origins of the Babylonian system. Ratios such as 15:14 and 21:20 only appear later as god-numbers as a result of enneatonism. Thus *Ištar* (15) had to associate with *Bel Marduk* (14) while *Anu* was given another number, (21) so that its ratio with *Šamaš* (20) produced the appropriate figure.

The left column

e) First hypothesis

The left column is a more difficult and controversial matter. Less work has been devoted to it. Gurney's 1968 transliteration gives:

1. [. . . . . *X úḫ-ri-im*
2. [. . . . . *]-tum*
3. [. . . . . *re-b]u-tum*
4. [. . . . . *ni-i]d qà-ab-li-tim*
5. [. . . . .]*i-šar-tim*
6. [*úḫ] - ru - um*
7. [. . . . .] *i-šar-tum*
8. [. . . . . *]-tim*
9. [. . . . . *muš-d]i-im*
10. .[. . . . . *ki-it-m]u-um*
11. .[. . . . . *Y u]ḫ-ri-im*
12. .[. . . . .].

Figure 15, UET VII 74, transliteration of the left column.

Lines 1, 6 and 11 seem to refer to the 'behind' strings of the instrument which are the bass ones numbered 5-4-3-2-1 from the series 1-2-3-4-5-4-3-2-1, described earlier[1], since they exhibit parts of the terms *úḫ-ru-um* or *úḫ-ri-im* in the nominative and the genitive respectively. Line 1 with a genitive would imply that the string was either *ri-bi úḫ-ri-im*; *šal-ši úḫ-ri-im* or *ši-ni úḫ-ri-im*, that is 'fourth; third or second (string) of the behind', i.e. either string 6, 7 or 8. ine 6 is the nominative of the same term and thus would apply to the last string: 'behind'. Line 11 in the genitive would be either string 6, 7 or 8. So the only certainty that we have up to now is that line 6 describes the last, the bass string of the instrument. The framework of the riddle is:

String 6, 7 or 8
String 9 (or 2)
String 6, 7 or 8

The other terms refer to interval names as given in CBS 10996. Line 2 has the nominative *(t)-um*, and thus could belong to *išartum*; *šalšatum*; *rebûtum* or *qablītum*, with intervals 2-6, 1-6, 2-7 and 5-2 respectively. Line 3 ending with *bḫu-tum* could only belong to *rebûtum* 2-7. Therefore the presence of *rebûtum* in the previous line can safely be eliminated. Line 4, *qà-ab-li-tim* in the genitive implies that it is preceded by *titur* meaning 'bridge', as we see it in CBS 10996.

However, Gurney's possible reading of a *ni-iḫd*? before the term does not help. The intervals could either be 4-1, or 2-4. In line 5 *išartim* should be preceded by titur since it is in the genitive, interval 3-5. Line 7 has *išartum* in the nominative, interval 2-6. Line 8 ending with a genitive could either be *titur qablītim* or *titur išartim*, 2-4 or 3-5. The next line, 9 with *-dḪi-im* could either be 1-5, 4-1 or 2-4. Line 10 with its nominative ending is most likely to be 6-3.

Richard Crocker has attempted the reconstruction of the riddle with the assumption that there were scribal errors in the text accounting for the discrepancies in the case endings, and also that the term in Gurney's reading, *muš-dḪi-im*, (now to be read *ṣ/zerdim*) is an interval name which does not involve a construct state[3] and that the genitive inflection must thus be due to some other construction.

1 see UET VII 126. 2 See PAPS 115, 144 n. 69.

2 *Status constructus*, or construct state: a shortened form of the noun, dependent on a following noun inthe genitive or on a genitive pronominal suffix, or on a relative clause.

1. [. . . . . *úḪ-ri-im* string 6, 7 or 8
2. [. . . . . *qá-ab-lí-tum* interval 5-2
3. [. . . . *re-bu-tum* interval 2-7
4. [. . . . *ti-tu-ur qá-ab-li-tim* interval 2-4
5. [. . . . .]*i-šar-tim* interval 2-6
6. [*úḪ]-ru-um* string 9, or 2.
7. [. . . .]*i-šar-tum* interval 2-6
8. [. . . *šal-šu-a-tim* interval 1-6
9. [. . . *sú-ir-du-im* interval 4-6
10 .[. . . *ki-it-mu-um* interval 6-3
11.[. . . *ri-bi úḪ-ri-im* string 6
12 .[. . . . .] x

Figure 16, Crocker's reconstruction of the right col. of UET VII, 74.

If we take Crocker's interpretation of the numerals as basis for our own, excluding the grammatical problems, then we note that the text is made up of quatrains as was the case with the right column, but this time they are subtitled by expressions consisting in specific string names. Thus it can be assumed that the string number in lines 1, 6 and 11 relate to the quatrain above each or rather that the quatrain relates to the string number which follows it as if the title followed the story rather than preceded it. The pattern for each quatrain is:

l.7	a-x
l.8	b-x
l.9	c-x
l.10	x-d
l.11	**string x.**

Since the common denominator of the above is x then let us assume that x = 6 as it would be in line 11 giving the following number progression:

l.7	2-6
l.8	1-6
l.9	4-6
l.10	6-3
l.11	**string 6.**

Following the extrapolation above then the string in l.6 would be string 2 since the common denominator of the quatrain above is 2.

Since the intervals immediately above and below line 6 are identical, 2-6, we may further assume that line 1 should have been 'string 5' and not anything else. Then the line preceding l.1 should have been 5-2. Careful observation of the structure of a quatrain shows that it yields four different intervals as we know them from CBS 10996. The four intervals have a common denominator showing 5 different notes in each quatrain. Now if we take the number of a string on which sits the quatrain, string 6 for instance in lines 7 to 10, the upmost note of a descending scale, we have the interval of a sixth with 5 distinct tones.

The reconstruction of the system from the above assumption that it is pentatonic showing a scale system which may involve 5 distinct species and taking treble E as the generative note of the system leads to the following:

l.a	4-1	=	*nīd qablim*
l.b	1-6	=	*šalšatum*
l.c	1-3	=	*isqum*
l.d	1-5	=	*nīš* GABA.RI
l.e	**STRING I**	**=**	**E**
l.f	1-5	=	*nīš* GABA.RI
l.g	7-5	=	*šerum*
l.h	3-5	=	*titur išartim*
l.i	5-2	=	*qablītum*
l.1	**STRING 5**	**=**	**A**
l.2	5-2	=	*qablītum*
l.3	2-7	=	*rebûtum*
l.4	2-4	=	*titur qablītim*
l.5	2-6	=	*išartum*
l.6	**STRING 2**	**=**	**D**
l.7	2-6	=	*išartum*
l.8	1-6	=	*šalšatum*
l.9	4-6	=	*s/zerdum*
l.10	6-3	=	*kitmum*
l.11	**STRING 6**	**=**	**G**
l.12	6-3	=	*kitmum*
l.13	3-8	=	*isqum*
l.14	3-5	=	*titur išartim*
l.15	3-7	=	*embubum*
l.16	**STRING 3**	**=**	**C**

Figure 17, pentatonic scale system in UET VII, 74.

We have an arrangement of pentatonic scale species from top E as: E-D-C-A-G, a pentatonic system which accounts for the numeration of the strings as 1-5-2-6-3 = 1-2-3-5-6. The system would have ended on string 6 since the next quatrain would have exhibited a tritone between degrees 4-7 which would have prevented the progression going any further.

Order	Notes	Strings	Scale	Intervals
I	E	1	e-c-b-a-g	3rd major/semitone/tone/tone
II	A	5	a-f-e-d-c	3rd major/semitone/tone/tone
III	D	2	d-b-a-g-f	3rd minor/tone/tone/tone
IV	G	6	g-e-d-c-b	3rd minor/tone/tone/semitone
V	C	3	c-a-g-f-e	3rd minor/tone/tone/semitone

Figure 18, pentatonic arrangement.

Scale number III stands in the middle of the system, scales I and II are identical with a major third followed by one semitone and two tones; scales IV and V are also identical with a minor third, two tones and one semitone. The central scale III has a minor third followed by three tones. These scales are atypical of our understanding of pentatonism which consists in an arrangement of tone and minor third either as tone-minor third, tone-tone, or tone-tone-minor third-tone, as shown with the subtitles. It is possible that these atypical scales could have constituted a transition between penta and enneatonism.

f) Second hypothesis

The order of the strings which subtitle the 5 quatrains in the left column, 1-5-2-6-3, is not consistent with the order of the strings as given in UET VII 126 where we have an inward numbering as 1-2-3-4-5-4-3-2-1. The order 1-5-2-6-3 is a descending order of fifths and ascending fourths similar to the dynamic order of the scales in the right column of UET VII 74. However it is the thetic rather than the dynamic notation which would have been used because it is what was heard that was relevant.

Such an arrangement of descending fifths and ascending fourths could not have been suitable for the angular harps of the third millennium onward because these instruments were designed diatonically, their right-angled triangular shape being the consequence of strings with constant mass and tension arranged in a diatonic order.

On the other hand the large Uruk period boviform lyres, which generally have 5 strings, show from my hypothesis that at least in two cases (see below) they must have been strung in a pentatonic order for which they had been designed.

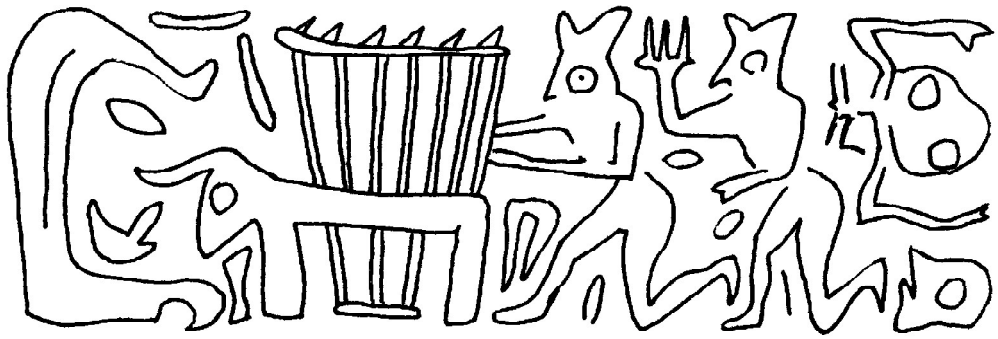


Plate 9, large pentachordal boviform lyre. Standing bovid. Susa. 276

This hypothesis has been developed at length in the organology section of this book but it will suffice for the present to state that there could have been an arrangement of the bridges of the instrument which would have allowed for a tuning in descending fifths and ascending fourths.

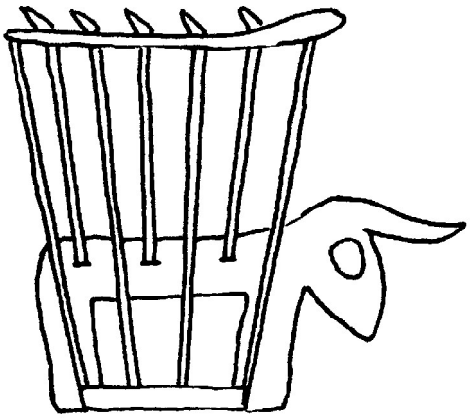


Plate 10, broken arrangement of the strings.

Here we see that the smaller strings are 2/3rd of the long ones and in this case, with equal mass and tension, they would have been tuned fifths and fourths apart. There are other examples of zoomorphic lyres and the one below, from Uruk, which seems to exhibit a similar bridge with four or five strings. However there are no signs of strings in contact with the bridges.

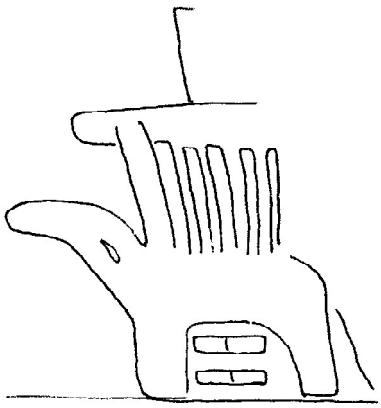


Plate 11, zoomorphic lyre from Uruk. 293

N 4782

Which complements UET VII 126

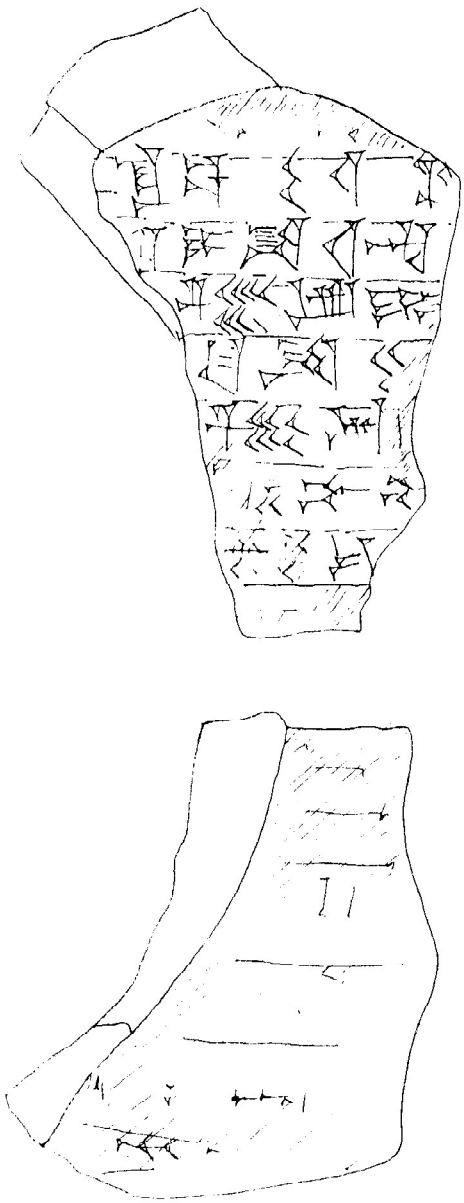


Plate 12, copy of the obv. and rev. of N 4782.

a) History

In November 1977 Aaron Shaffer found a small fragment[1] at the University Museum collection in Philadelphia which he believed to be complementary to the obverse of UET VII 126. It was published in 1981[2].

obverse

Sumerian column	Akkadian column
1' (i8) [x x x x]	*š[i]-n[i] ú[ḫ-re-em]*
2' (i9) [x x x x]-la	*úḫ-ru-[um]*
3' (i12)[x x]-sa 2	*i-ša-ar-[tum]*
4' (i13)[x x x x x]	*sì-ḫi-ip i-š[a-ar-ti-im]*
5' (i14)[x x x x x]	*ki-it-mu-[um]*
6' (i15)[x x x x x]	*sì-ḫi-ip ki-i[t-mi-im]*
7' (i16)[x x x x x]	*en-bu-bu-[um]*
8' (i17)[x x x x x	*s]ì-ḫ-ip e[n-bu-bi-im]*

reverse

Sumerian column	Akkadian column
1'- 4' broken or undeciphered traces	
5' [x x x x	*x x x] a [xx]*
6' [x x x x	*x x x x] ḫi-x [x]*
7' [x x x x x	*x x x x x]*
8' [x x giš al]-gar	*x x[x x x]*
9' [x x x	*x]x ti-x-[x x x]*
10' [x x x x]x	*[x x x x x]*
rest broken	

Figure 19, Shaffer's transliteration of N 4782.

The discovery of the term *siḫpu* prompted Kilmer and Crocker to publish another article[3] in which they reconstructed UET VII 126 to line 25, comparing it to the collation of the fragment N 4782.

1 Shaffer considers the tablet to be from the Old Babylonian period, being ca. 1800 BC. Finkel thinks it Middle Babylonian.

2 Shaffer, A., *A New Musical Term in Ancient Mesopotamian Mus*ic, IRAQ XLIII, Part I, spring (1981), 79-83.

3 Kilmer, A., and Crocker, R. *The Fragmentary Text from Nipp*ur, IRAQ XLVI (1984), 81-85.

UET VII 126, Obv. Col.I&2, N.B. N 4782, Obv. O.B.?

1.sa.di *qud-mu-u[um]*	[sa.di *qud-mu-u-um]*
sa-uš *šà -mu-šu-um*	[sa-uš *šà-mu-šu-um]*
sa.3.sa.sig *ša-al-šu qa-a[t-nu]*	[sa.3.sa.sig *ša-al-šu qa-at-nu]*
sa.4.tur *a-ba-nu-[ú]*	[sa.4.tur *a-ba-nu-ú]*
5.sa.di*5 *ḫa-am-[šu]*	[sa.di*5 *ḫa-am-šu]*
sa.4.a.ga.gul *ri-bi úḫ-ri-i[m]*	[sa.4.a.ga.gul *ri-bi úḫ-ri-im]*
sa.3.a.ga.gul *šal-ši úḫ-ri-rim*	[sa.3.a.ga.gul *šal-ši úḫ-ri-rim]*
sa.2.a.ga.gul *ši-ni úḫ-ri-im*	1'[sa.2.a.ga.gul] *ši-ni ú[ḫ-ri-im]*
[sa.1]a.ga.gul.la *úḫ-ru-um*	2'[sa.1.]a.ga.gul].la *úḫ-ru-um*
10.[9]sa.a *9 pi-it-nu*	
[sa.]du.a! *pi-is-mu*	
[sa.] si.s]à *i-šar-ti*	3'[sa.si].sà *i-ša-ar-[tum]*
[sa.x si.sà] *[s]i-ḫ-ip i-šar-tum*	4' [sa.x sa.s]à *si-ḫi-ip i-š[a-ar-tim]*
[sa. šu?] *[ki-i]t-mu*	5' [sa.š]u? *ki-it-mu-[um]*
15.[sa.x šu?] *[si-ḫi-ip k]i-it-mu*	6' [sa.x š]ú? *si-ḫi-ip ki-[it-mi-im]*
[sa.gi.gìd] *[em-bu-bu]-um*	7' [sa.gi.g]ìd *em-bu-bu-[um]*
[sa.x.gi.gìd] *[si-ḫi-ip em-bu-bu-u]m*	8' [sa.x.gi.gìd] *si-ḫi-ip e[n-bu-bi-im]*
[sa.x] *[pi-tum]*	9' [sa.x] *[p]i-[tum]*
[sa.x y] *[siḫip pitim]*	10' [sa.x y] *[siḫip pitim]*
20.[sa.šub.murub$_4$]*[nid qablim]*	11' [sa.šub.murub$_4$] *[nīd qablim]*
[sa.x.šub.murub$_4$] *[siḫip nid qablim]*	12' [sa.x.šub.murub$_4$]*[siḫip nīd qablim*
[sa.x.gaba.ri] *[niš gabrîm]*	13' [sa.x.y.gaba.ri]*[nīš gabrîm]*
[sa.x.y.gaba.ri] *[siḫip niš gabrîm]*	14' [sa.x.y.gaba.ri]*[siḫip nīš gabrîm]*
[sa.x.murub$_4$] *[qablitum]*	15' [sa.x.murub$_4$]*[qablitum]*
25.[sa.x.y.murub$_4$]*[siḫip qablitum]*	16' [sa.x.y.murub$_4$]*[siḫip qablitum]*

Figure 20, reconstruction of UET VII 126 with N 4782.

The extrapolation above reveals that from lines 12 (= 3'), we have a series of seven terms which could either equate to scales or intervals with a specific variation for each, qualified by the term *siḫip*. *Siḫpum* would be a nominal derivative of *saḫapum*, 'to throw to the ground'.

The order of the terms:

išarti / siḫip išartum
kitmu / siḫip kitmu
embūbu / siḫip embūbum
pitum / siḫip pitim
nīd qablim / siḫip nīd qablim
niš gabrîm / siḫip nīš gabrîm
qablîtum / siḫip qablîtum

. . . does not agree with the order of the scales in the first chapter of UET VII 74 but it does with the order of the second chapter. It does not agree either with the order of intervals in CBS 10996. The first problem is to establish why the order of the second chapter of UET VII 74 is used here rather than the order of the first one and why it differs from that in CBS 10996.

b) First hypothesis

If we list the modes in the order common to both N4782 and the second chapter of UET VII 74, we see that the notes which need to be lowered for the purpose of the generation of modes appear in the following sequence: 2-6-3-7-4-1 which in turn reveals a sequence of tritonic intervals containing the following notes: 5-2/2-6/6-3/3-7/7-4/4-1/1-5.

If now we analyse the first chapter of UET VII 74 in the same manner, the order of the notes which need to be raised is: 5-1-4-7-3-6 and the order of the tritonic intervals in which they are included is: 5-2/1-5/4-1/7-4/3-7/6-3/2-6.

We have the same notes and intervals in both sequences. However the order in which the tritonic intervals follow each other is more coherent in the second chapter because the last note of each interval is also the first note of the next.

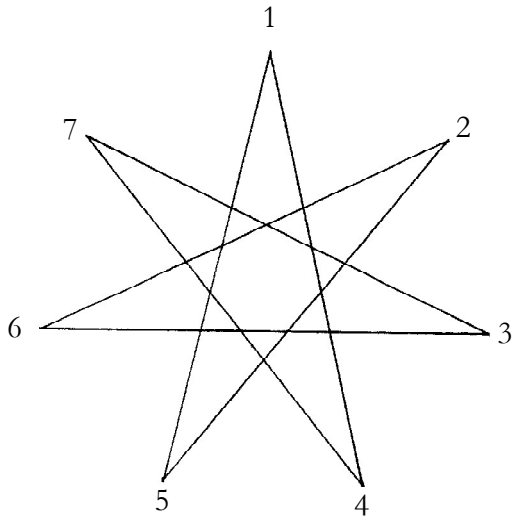


Figure 21, heptagonal pattern produced by the above sequence.

In practical terms this is very significant as it would have been much easier for a musician to determine the position of these tritonic intervals on his instrument. Whilst theory established the first chapter, practice would have dictated the second and this is probably one of the reasons behind the existence of both chapters in the text. It follows that N4782 listed scales in respect of practice rather than theory. The same modal arrangement is seen in text KAR158, which follows. It can be assumed that songs and hymns or other musical genres were classified and subsequently played in that order.

c) Second hypothesis

With regard to the term *siḫip* which qualifies either modes or primary intervals Aaron Shaffer drew our attention to Sumerian contexts referring to music with the equation of *siḫpum* / *saḫāpum* to Sumerian $šu_2$. In the *Šulgi* hymn B, within the section which deals with his knowledge of music, the king says: zi-zi-i $šu_2$-$šu_2$-ba giš mu-e-ḫur-ḫur: 'I created all the rules for 'rising/raising' and 'overtuning/throwing down' (the intervals)'. It is clear that the king had invented the rules for the generation of the scales, classification and playing of music.

This equation is found in other texts such as the *Šulgi* hymns E and C and also at the end of certain compositions. Whilst working on the Hurrian Hymns, I hypothesised that the Hurrian term *paḫita* in the directive, 'towards the head', indicated a change of orientation for the playing of the intervals in relation to the geography of the instrument: that is *'to play the interval in the direction of the head of the instrument'*[1] thus Hurrian *paḫita* would have equated to the Akkadian *siḫip*. However, the context in which the term *siḫip* is seen here does not lend itself to this interpretation. There is no logic either in suggesting that the term would have indicated that the scale should be read as ascending instead of descending. It has been further proposed that the term would have been some equivalent of plagal (as complementary of authentic) as we have it in Gregorian chant. However had this been the case then the number of modes would have been restricted to four authentic since there would have been four plagal modes to complement them as is the case with our Western paradigm.

The terms 9 sa.a = 9 *pi-it-nu* at line 10 of UET VII 126 meaning in both Sumerian and Akkadian '9-strings' are relevant to the strings listed in lines 1-10. The heading [sa]du.a! = *pismu* at line 11 of UET VII 126 would have qualified the list that followed. However we would have expected a form of incipit for the names of the strings and there is no trace of such, at least on the obverse of the tablet. If *pitnu* names strings, *pismu* must have been correlated to *pitnu*. After a list of strings or notes would follow a list of intervals, rather than a list of scales, as the dyad 'notes-intervals' seems more logical than the dyad 'notes-scales'. In which case the term *siḫip* would correlate with both *pitnu* and *pismu* meaning 'scale'. Thus, the first line following the heading *pismu* would name a primary interval and the next the scale of the same name. This would be repeated for the other intervals and their homonymous scales.

The interval which starts the list, *išartum*, is a just descending fifth in relation to the scale of its own name but becomes a tritonic interval in the same position, in relation to the next scale, *kitmum*.

1 Early Dynastic Ur lyres were ornate with a bull's head at their front.

The fact that the interval *išartum* is placed on strings II-VI as head of the list, confirms my hypothesis that it is string II, or note II, which is the tonic note of the enneatonic scale. Its first degree, string or note I, is the added anacrusic element which precedes the tonic note of the scale placed on the second string or degree.

The first chapter of UET VII 74 would have established the method for the generation of the modes whilst both the second chapter of UET VII 74 and N 4782 would have provided the method of classification, the order of interpretations of the repertoire and the relevant tuning method. This was based on intervals and not on scales as been previously thought.

KAR 158

Hymn classification

a) History

In 1996, H. Limet published[1] the most accurate analysis of text VAT 10101 (KAR no. 158), although it had been previously pillaged by scholars interested in both Sumero-Babylonian music theory as well as literary genres[2]. Wolfram Von Soden collected it in his *AHw* and it was further published by contributors to the *CAD*. E. Ebeling, its original editor had classified it as a *Hymnenkatalog*.

From now onward I shall refer to Limet's methodology since the scholar's work is fully authoritative.

With regard to the reading order of the tablet, Ebeling had accurately numbered the columns: columns 1, 2 and 3 to which is added a fourth fragment. However, col. 3, p. 276, which has lacunae, is in fact the rev. of I, which is col. 5; the third equals to rev. II and is col. 6; the second which equals rev. III, or col.7, and lastly the first which equates rev.IV or col. 8.

Obv. I consists in a list of *incipits* written in Akkadian, of songs classified in Akkadian groups: *iškaratu* meaning 'collection, series'. At the end of each *iškaratu* the scribe has added the number of songs that preceded: *iškaratu* 2 brings the number to 11 *zamaru* (l. 9), 3 to 16 (l. 17), 4 to 21 (l. 25), 5 to 26 (l. 34), and 6 to 31 (l. 42). Following erasure prevent from any further reading.

Obv. II follows the same principle consisting in five *iškaratu* of five songs each, and the sixth *iškaratu* of six songs, amounting to a total of thirty one. In all, II, 48 mentions sixty songs (?) + thirty + one Akkadian song, thus thirty are missing.

The next column follows the same disposition as with the first and the second with the difference that it classifies Sumerian songs.

1 Limet, H. *Collectanea Orientalia, CPOA* 3, 1996, pp. 151-158.
2 Borger, R., *HKL* I, p. 100 and II, p. 56; Black, J.A., *Babylonian Ballads*, *JAOS* 103, p. 25 ff.; Held, M., *JCS*15 (1961) 13 ff.; Matsushima, E., *Le Rituel hiérogamique de Nabu*, *Acta Sumerol.* 9, p. 143 ff.; Livingstone, A., *S.A.A.* (1989) III, n. 14, p. 35.

To start with there are twenty three songs collected in 4 collections (three collections of five songs and one of eight). From l. 32 to l. 46, we have two more collections consisting in a group of 10 Sumerian songs belonging to another series. Obv. IV is not readable.

At rev. of I (col. 5) we have only *incipits* of thirteen songs of which only the begining of lines are readable. Rev. II (col. 6) gives a total of eleven songs of which eight in Sumerian and three in Akkadian. They are lost. From l. 6 to l. 30, we have groups of two or five songs all in Akkadian and classified according to genre.

Rev. of III (col. 7) holds a long list of *incipits* of well defined songs. The last column (rev. IV = col. 8) has a disposition different from others as it consists in a recapitulation in which we find terms already mentioned[1].

Regarding the contents of the text, we have on obv. I a list of hymns dedicated to deities, or mentioning deities. The scribe has noted at lines 10, 18, 26 and 35 *akkadita manu* which the *CAD* A/1, p. 272 translates as follows: 'I have recorded/made a list of (songs) in Aklkadian meters', neaning *minuta*. This would be an allusion to prosody rather than to content. It is probable that this is more about genre but we have no more information[2].

The first words of these songs suggest solemnity and express noble concepts in keeping with a religious context. They are placed under the authority of Ea, god of music:

^{d}*É-a ba-la aṭ-ka li-iq-bi*

'May Ea proclaim your life'

The gods who are mentioned are:

bu-ku-ur ^{d}*A-nim lu-uz-mur du-un-na-ka* (l.20,31 ,33)

'Offspring of Anu I sing your strength'

1 The left part of the column has vertical lines for the purpose of numbering. The first column is empty; the second we have totals; in the third partial numbers, *i.e.,* from 17 to 18, col. a is empty; in col. b, we have 1 *šumeru* 10 *akkadû*; in c we have *naphar* 11 *zamar šêri*. The right half of the col. 8 gives the language in which the song is written as well as its genre.

2 The interpretation in *CAD* is uncertain as vol. M/2 s.v. *minutu* the translation is not sustained. We are not knowledgeable about what Akkadian poetic meters were. Rhythm seems to rest neither on syllabic number nor on stress. See E. Reiner, 1978, Die akkadische Literatur; with W. Röllig (ed.) *Neues Handbuch der Literatur Wissenschaft*, Wiesbaden, p. 201. There seems to be as a rule a trochaic ending (- -v) which is plausible, especially with *incipits* given with *KAR* 158.

The term *akkaditu* is an adjective and is opposed here to *ištarutu,* whilst *šumeru* is opposed to *akkadû*.

^{d}*La-ab-ba-ta* (l. 13)
'Lionness' (= Ištar)
lu-uz-mur ^{d}*Er-ra du-un-na-šu lu-ul-li* (l. 21)
'That I sing to Erra, and that I magnify her strength'
ma-ṣa-ra-at ^{d}*Er-ra ha-i-du* (l.24)
'It is a joy to protect Erra'.
ta-ni-id qu-ra-di ^{d}IM *lu-sa-gàr* (l. 28)[1]
'May the praise of of the hero Adad be proclaimed'
(see also, l. 32 and l. 38)
na-ra-am-^{d}En-lil (l. 39)
'The one loved by Enlil'
[...]*lu-uz-mur a-na* ^{d}XXX (l. 40)
'that I sing ... for Sin'

The Igigi(s) are mentioned at lines 14 and 40; the demoms: *binut Anim* (l. 30) 'son of Anu' and ^{d}Sar-ra-bu (l. 23). The shepherd at lines 6, 7 and 8 is Dumuzi: *er-ba-a]m-ma* lú sipa *har-mi* ^{d}*Eš$_4$-tár-ma* 'enter, shepherd, lover of Ištar' and *ur-ša-]na* lú sipa *a-za-am-mu-ur-ma* 'I shall sing praise to the brave shepherd'[2]

The songs are more defined at obv. II (col. 2). They are called *istaruta*, which means that they are 'Istarean', either because of their content or of their presentation. The term *Ištarutu* is opposed to *akkaditu* in col. 1. No divinity other than the goddess is mentioned. Her name is mentioned at line 6:

za-mar ^{d}*Eš$_4$-tár šar-ra a-za-am-mu-ur*
'I shall sing the song of Ištar the queen', and at line 30:
^{d}*Eš$_4$-tár am-ma-ra-ta.*

This last epithet is found again at line 26:

am-ma-rat kal nišê
'The one who protects all the people.'

1 The form *lussaqar* from *zakāru* 'to proclaim' form N; *ta-ni-id,* a variant of *tanittu* (see in 2, 43: *šar-ri ta-ni-tu-uk-ka* 'my king, your praise...'
2 See W. Farber, 1975, *Beschwörungsrituale an ištar und Dumuzi,* Wiesbaden, p. 140-141; *ana Dumuzi harmišu*; p. 146-147, 114: *atti Ištar sa harmaša Dumuzi;* 240-241, 46 : *Dumuzi re'û hamiru narām Ištar;* et *passim.*

She is also:

qa-ri-it-ta marat ^{d}*Sin ilta te-li-ta* (16)

'Heroic daughter of Sin';

bu-kur-tu ^{d}A-*nim* (32)

'daughter of Anu';

ši-it-mar-tu (13)

'impetuous';

šar-rat me-le-si (15)

'queen of rejoicing'.

She also appears under the name of Nana (l. 22 and l. 44) which has been assimilated to her:

^{d}*Nana-a lib-ba-ša ha-da-a ub-lam-ma*

'Nana, her heart has brought joy'.

Simply, (l. 21):

ti-iš-ma-ri ilat-ni na-ma-ri-tu

'Oh, our goddess, glorify dawn'.

The shepherd is mentioned again:

a-na na-ah-[ši] re'i a-ṣa-ya-ah (7)

' I (lovingly) smile to the vigorous shepherd' (see l. 1, 5 and 8)

ù re-'i [x b]it ru-'a-a-am

and then:

a-ra-am (9)

'I love'[1]

The mood of these songs appears more cheerful that the previous ones.

The Sumerian of the *incipits* of obv. III (col. 3) is syllabical and therefore more suited tobaccurate pronounciation required for singing . However, their translation is difficult. A. Falkenstein has solved a few problems[2]

1 Line 21, form of *samaru* B (see *CAD*).

2 See Falkenstein, A., 1950, *ZA* 49, p. 103, who provided the transcription of some titles in classical Sumerian which are not worth mentioning here. Civil, M., 1967, *JNES* 26, p. 209, n. 28, reads II, 52 as: ba-lam ba-lal-le hi-iz-za me-e pa-[x?] the extract in *TRSI 20 (see* Kramer, S.N., 1963, *PAPS* 107/6, p. 508, n.9).

Obviously these are religious hymns which have defined genres. The first ten are *te-ge-e*(l. 9), ti-gi in Sumerian; so are the five that follow (l. 17); and the eight last ones, that is a total number of:

23 *te-gu-ú šu-me-ru*

Those mentioned at lines 32 to 36 are:

a-da-pa šu-me-ra am-nu

Which are adab hymns. The genre of the following five is unknown. The last is Akkadian.

From the reverse of I (= col. 5) we shall assume from the few words remaining that they are religious songs of which we cannot say more than they are called:

ši-iṭ-[ru ša eb-bu-be].

At rev. II (col. 6) our reading continues with diverse types of songs:

a) *šir ku-gu-ú* (l. 5), Akkadian rendition of Sumerian šir ku-ga, meaning 'sacred song';

b) *ki-ir-ri-e-tu* (l. 11), plural form of *kerretu* of *kerru*

c) *ga-an-gi-it-tu* (l. 15), from Sumerian model gan-gíd

d) *nu-u-ru* (l. 18)

e) *e-li-lu sad-ru-u-tu* (l. 21), 'somme *elilu* that follow', which would imply that they were to be played one after the other (?).

f) *se-er-hu*

g) *b[u-ú-ru]*

All but for eight of these songs of which we do not know the *incipits,* all are in the Akkadian language. In the summing up of reverse IV (= col. 8), there is mention of types of songs previously listed as well as *sitru ebbube* (l. 14), *buru* (l.33), which makes some restutions possible. Their inspiration is erotic, generally, and mention the goddess on two instances (col. 6, 22 and 23):

$^{d}Eš_{4}$*-tár šar-rat nišê ra-'a-um-tu*

'Istar, beloved queen of the people'

and ^{d}*Eš-tár ma-an-nu ba-lu-uk-ki be-le-ti*

'Ištar, without you, my lady...?'

There is further mention of the goddess at lines 6:

hu-di-i be-le-et-ni = šu-li-li

'Rejoice, our lady, sing cries of joy';

and at line 7:

e-muq-ti em-qe-ti am-ma-rat nišê

"The wise among the wise the one who watches over the people'

and line 8:

ra-šu-ub-tu ina ilî a-na-ku

'Imposing respect among gods, it is I'

and line 25:

sa-a-ma-ri-tu tu-te-e tu-te-e

'Lady..., you have seeked, yes you have seeked'

and in 27:

sur-bu-ta a-na nišê a-za-am-m[u-ur]

'I shall sing your greatness to the people'

The god to whom the sentence of l. 13 is addressed cannot be identified:

ga-áš-ra ila šar-ra lu-uz-za-mu-ur

'I sing praises to the powerful god, the king'

and at line 14:

ila da-ap-nu

'The powerful god'.

Some *incipits* foretell those in reverse III (col. 7). There is no doubt with regard their content which is about lyric love. These songs are differently characteriseed. They are *iratu*, plural form of *irtu*, meaning breast[1]. The term is itself determinated by a complement:

šae-šir-te (l. 6) which is usually translated by 'sanctuaries' but which could mean 'norms' (*i.e.* sung in normal tones)[2];

šaki-it-me (l. 24).

The hypothetical thirty songs which are named after have disappeared in the lacuna. Thankfully, we find the diverse types in column 8, 45-50: *iratu* (written GABA.MEŠ) *ša e-šir-te* Uri^{ki}, *ša ki-it-me, ša eb-bu-be, ša pi-i-te, ša ni-id qabli* (MURUB$_4$), *ša ni-i[š qab-ri, š]a qabli* (MURUB$_4$)*-te.*

1 Breast, chest which are sexual symbols. Whatever the semantic slant they relate to love songs. See Kilmer, A.D., 1971, The Discovery of an Ancient Mesopotamian Theory of Music, *PAPS*, 115/2, p. 138 and the footnote 24 which translates as 'love songs'.

2 Kilmer, 1971, *op. cit.*, p. 137 thinks that *eširte* would be a graphic variant of *išartu*.

The eighth and last column consists in counting the songs recorded in the text.

Firstly the series *māruṣ māra imni* (l. 3), *murtami* (l. 4), 'the lovers', and sipa (l. 5), 'the shepherd', probably in the Akkadian.

Secondly the series *te-gu-u šu-me-ru* (l. 8), and the *za-ma-ru a-da-bu* (l. 11). Note the re-appearance of the /b/, as in adab.

Thirdly we have the series šir gid-da (Sum.), šir dingir-gal-la-*ku* (Hymns 'to the Great Gods' in Sumerian), 3 *ši-it-ru* š*a eb-bu-be* Uri^{ki}, 2 KI.MIN *(= šiṭru) ša pi-it-te* Uri^{ki} and 5 *pa-a-ru ak-ka-du-ú*, all songs there are qualified as *za-mar še-e-ri*

Fourthly we have the series 11 *za-mar a-la-li* Uri^{ki} and 10 *za-mar* ^{d}Nin-giz-zi-da, 10 *šir ku-gu-ú*, 5 *ker-re-tu*.

Fifthly, to the names already mentioned must be added the following: 1 *a-ra-ah-hu* (Sum., l. 35), 1 *šu-ta-ni-du-u* (Sum., l. 36), 2 *ši-qa-tu* (Sum.,l. 37), 2 *ši-sa-a-tu* (l. 38), 2 *ri-ip-qu* (l. 39) and 5 *qu-ur-du*, heroic songs (l. 42: 2 in Sumerian and 3 in Akkadian). Last, *kar-su-ú* Uri^{ki} and 4 *me-e-ru* (l. 43-44).

Last, the *iratu* series listed in column 7.

The problems of philology raised in the text *KA*R 158 are certainly not all resolved. However, interpretation is possible. It is a song catalogue[1] which grouped songs and poems and therefore we have to address two types of questions, the ones related to music and the others to the text.

Sumerian hymns are classified according to tradition. Here we have tigi and adab hymns. We have know for a while that both types have a religious destiny, as they consist in laudations and prayers to gods and sometimes to kings. However, we do not know anything about the musical form that supported the text. We do not know anything either of the šir kù-ga, *kerretu*, *elilu* and others of which some literal translations are given. However we do not know if the denominations refer to the text and its contents or to the musical instructions.

1 It is quite certain that there were other catalogues of the same type as *KA*R 158. See Finkel, I. L., 1988, *A Fragmentary Catalogue of Love Songs*, *Acta Sumerolohgica*, 10, p.17-18.

The text reveals two other types of songs. Firstly there are ambiguous religious songs which belong to a named specific typology and secondly erotic songs named *iratu* of which the *incipits* leave no doubt regarding their content.

The amorous lyricism appears to bear musical indications since terms such as *kitmu* and *pîtu* specify the mode in which the song would be given[1].

The second collection qualifies as *ištarutu* belongs to the series 'Oh my shepherd, Oh my shepherd!' (col. 2, 46; the term *sipaḫre'um* at lines 5 and 8). These were pastoral poems about shepherds' loves under the supervision of the goddess *Ištar* as given in column 6 .

At columns 6, 7 and especially 2, there is matter of concern regarding amorous lyricism. Firstly all known *incipits* with the exception of columns 6, 9 and 29, seem to have been formulated by women. Who were these women tempting men in such a manner, with promises of dances, of pleasures, flirting and passions?

1 Ther terms *kitmu*, from the stem *katāmu*, 'to cover' and *pîtu*, 'opening' are clearly differenciated. Contexts reveal that they are conventional namings of which the meaning was secretive. This applies too with *zamar alali* 'work song?' or with *zamar šeri*, 'aubade ?'

N 3354

In which there is evidence of Old Babylonian music notation

a) History

Another fragment from Nippur adds to the collection. It is located in the University Museum, Philadelphia. It was copied by Miguel Civil[1] and identified by him as part of a larger tablet dealing with music and subsequently collated by Professor Erle Leichty of Philadelphia. It mentions king Lipit-Ištar of Isin and dates from the old Babylonian period.

Plate 13, copy of N 3354, obverse and reverse.

1 Kilmer, AD., and Civil, M., *Old Babylonian Musical Instructions Relating To Hymno*dy, JCS 38/1 (1986) 94-97. The tablet was collated by Prof. E. Leichty.

Obverse (beginning broken).
col. i' 1' [ ] ⌜x
2' [ ] ⌜x
3' [ ] ⌜x
4' [ ] ⌜li
5' [ ] ⌜x
(remainder of col. broken).
col. ii' (beginning broken).

1' *zi-[en-nu-um ⌜x [ ]*
2' *i-ša-ar-tim zi-en-nu-um [ ]*
3' *zi-en-nu-um ⌜x* GI ! *ti [ ]*
4' *zi-en-nu[um]*
5' ^{d}*li-pi-⌜it-eš$_4$-tár [ ]*
6' *ri-bi úḫ-ri-im z[i?*]
7' *ki-it-mu-um zi-e[n-nu-um]*
8' *[s?]e-er ! -du-um z[i-en-num]*
9' *[(x)] ⌜y (+)z sì-ḫi-ip pi-t[im ?*]
10' *[x(y)] zi-en-nu-[um]*
11' *[x(y) zi-e]-n-nu-um zi-[ ]*
12' *[ ] ⌜zi [ ]*
(remainder of column broken).
reverse (beginning broken).
1' *[(x)] ⌜x [ ] ⌜x x [ ]*
2' *sì-⌜ḫi ! -ip ! qá-ab-li-t[im ?*]
3' *[q]á-⌜ab -li-tum ⌜zi i-[en-nu-um]*
4' *[zi ? -en ? -n]u ? -um ⌜x* G[I ? *ti ?*]
5' *[ ] ⌜zi-en-[nu-um]*
(remainder broken).

Figure 22, Leichty's transliteration of N 3354.

b) Interpretation

This very difficult Old Babylonian text introduces the hapax legomenon *s/zennum* and confirms the existence of the term *siḫip* as a musical one.

Professor Kilmer[1] perceived that the first four lines of column ii contained some musical instructions for a revious hymn. Thus line 5 would be an incipit mentioning *Lipit-Ištar*.

1 Kilmer, A.D., *Musical Practice in Nippur,* JCS 43/1, (1991/2).

Line 6 according to her would give the starting note of the piece which she identifies as a 'b'. Lines 7 and 8 having intervals and line 9 the name of the mode *šiḫip pītim*.

c) First hypothesis

This fragment reveals a pattern. Line 9' of the obverse and line 2' of the reverse mention names of modes:

Obv. 9' has:

[(x)] ⌜z (+)z sì-ḫi -ip pi-t[im?]

Rev. 2' has:

sì-⌜ḫi -ip! qa-ab-li-t ⌜im]

Since both statements are included between single lines it is to be presumed that they served the same purpose, as either a header or a footer. Since both lines give names of modes, and on the grounds that Hurrian hymns that we shall see later mention modes in the colophon, we could then assume that the name of the mode relates to the lines which precede rather than follow.

If this is so then line 5' of the obverse mentioning Lipit-Ištar would be an incipit and therefore part of the title. Subsequently, in partial comparison with the presentation of the Hurrian hymns, we have here an Old Babylonian hymn titled at line 5', inscribed in lines 6',7' and 8' and with a colophon at line 9'. However whilst the Hurrian hymns give the names of intervals, sometimes with a pre or postpositioned qualifier followed by a number, there is no such trace in the Old Babylonian tablet.

Thus the presence at line 6' of *ri-bi úḫ-ri-im* is unorthodox but there is no reason why a single string should not be mentioned in the context of musical notation. Now, the presence of the *hapax legomenon s/zennum*, pre or postpositioned, is intriguing on the grounds of its persistence making its meaning difficult to understand. Furthermore the similarity between lines 3' of the obverse and 4' of the reverse with a possible reading of G[I?*ti?*] adds to the complication.

If this tablet is notation then another problem arises. Lines 9' of the obverse and 2' of the reverse would be the names of the modes in which the preceding notation is written.

As we have seen with *KA*R 158 the music was played in a specific modal order. Now *siḫip qablitim* in Reverse 2' is not what should have followed *siḫip pitim* in Obverse 9'. We would expect *siḫip nīd qablim*. However the reading of *⌈ḫi! ip!* at line 2' of the reverse is not clear and lends itself to a reading of *nit* but this would not be orthographically correct.

I am inclined to believe that this tablet is a fragment of music notation on the basis that there is much in common with the layout of the Hurrian tablets, even if the *hapax legomenon* remains obscure.

BM 65217 + 66616

a) History

This very difficult neo-Assyrian text, perhaps from Sippar, was 're-discovered' at the British Museum by Leichty and Lambert who contributed to its reading together with Oppenheim. Sollberger then granted Kilmer the privilege of studying it. It was subsequently pubished in 1984[1]. In early 1997 Finkel assisted with regard to the reverse of the tablet.

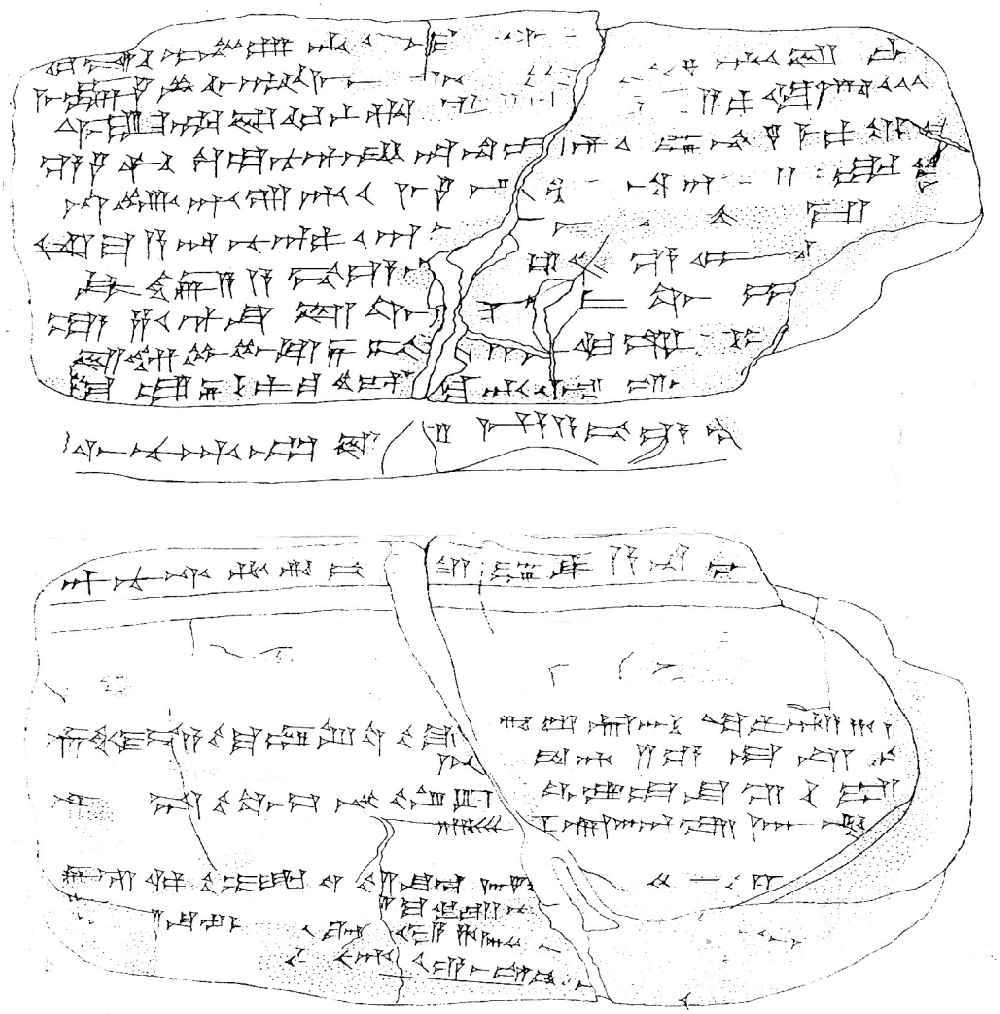


Plate 14, copy of BM 65217 + 66616.

1 Anne Draffkorn Kilmer, *A Music Tablet from Sippar(?):* BM 65217 + 66616. *IRAQ* Vol. XLVI, Part 2, Autumn 1984. 69-79.

b) Interpretation

Obv.

1.di-iš-šú *qud-mu-ú* ^{d}⌜en?-x-x-x [ ]

2.me-in *šá-mu-ši* ^{d}en-me⌜ša?-ra? E[N?X] ⌜x x - *šá-ti u* GIM pi?-⌜x [ ]

3. *lim-mir-ka* GIM *di-pár-ri⌜tu?* x x [x x]⌜a-pa/ḫat KI re-eš [(x)]

4.e-šà *šal-šú qa-at-nu* DINGIR.MAḪ *ba-na-a[t]* DINGIR. *u* LÚ *mu-šà-me-šat*

5.*na-šir-ti kit-ti u me-šà-r[i]* kàd?-[x]⌜na -an[x] ⌜x x *šar-ru?*

6.[l]am-ma *a-ba-nu* ^{d}PA *u* ^{d}L[UGAL?] ⌜x *ina* ⌜x x ib? [xx]

7. *paḫ-ḫi-ir a-a-bi-e-k[a? x]* kin? ⌜x e-mi⌜x [xx]

8.ḫa *ḫa-an-šu* GIM *pi-⌜tu* lip-pi a[b?]

9.GIM *em-bū-bu* lu/DIB ni ⌜tàk - x x ki-iš⌜kin ⌜x [x x x]

10.x(+) *še-ni* šú PA *ma-ḫi-ra [l]a ti-ši* GUR? *iš[ ]*

lo.e.

11. *lim-nu-ti-ka* GIM *[ša]m?-me a-a-bi-e-k[a]*

Rev.

12. *an-nu-ti ik-ri-bi [š]a* LÚ.nar *a-na* ⌜x *[x x x]*

Traces in two erased lines

13.(a) SA ḪUŠ.BI.A: *ma*-AZ-*ru-tú: š[a r]i-gim* SA.MEŠ-*šú la-pa-ti a-ḫa-m[eš?]*

(b) I- e[n]it-ti 2- e la qur-r[u-ub?]

14.(a) SA DU: *pi-is-mu: ru-⌜tu* [(x)] *pe-ta-at* ŠU.SI- *šú* RA-[(x)]

(b) *ina re-eš?* ⌜x SA.MEŠ AN.TA.MEŠ KAB![(x)]

15.(a) SA SI.SÁ: *i-šar-tú:* 2? ŠU.SI.MEŠ *šá* ⌜x [(x)] ⌜x

(b) *2-ma* KI.TA ⌜x x [ ]

16.(a) [SA? (x) 2? ŠU.SI.ME[Š (x)]⌜x ma AN KI *a-ḫa-meš* [ ]⌜x

(b) ⌜x [n]u-ti uḫ10-*e ina* iš-N[E? x (x)] ⌜x

Provisional translation

Obv.

1.one (=) fore (string), " god[n?....."]

2.two (=) next (string), " god Enmešarra?, Lord(?) of..... and like ...]

3.let shine for you, like a torch let?....."]

4. three (=) third-thin (string), " great goddess, creatress of god and man who makes prosper.....,]

5. protectress of truth and justice....."]

6. four (=) Ea-creator (string), " god Šullat and god Ṣaniš ?...in.....,]

7. gather your enemy [.....]

8. five (=) fifth (string), (is?) like " open" (tuning/interval).....]

9.(is?) like " reed-pipe" (tuning/interval)...., " .....]

10.....the wicked?.....you have no rival.....,]

11. your evil ones like plants?, your enemies [you destroy?...."]

Rev.

12. These are the adoration greetings which the musician for p[erforming? .....]

==========

13. (a)SA ḪUŠ.BI.A: mazrutu (tuning): the sound of whose strings to play together

(b) one with the second not brought near?

14. (a) SA DU: pismu (tuning): rutu-span? is open, his fingers.....

(b) at the head of... upper strings.....

15. (a) SA SI.SA: " normal" (tuning): 2? fingers which.....

(b) twice, below.....

16. (a) [SA?] 2? fingers.....together.....

(b).....

Figure 23, Kilmer's transliteration of BM 65217 + 66616.

c) Hypothesis

The tablet is typically divided in two distinct parts by a double line. Both parts relate to music. The first part is essentially about the listing of 5 or perhaps 6 *ikribu*. These are some form of benedictions or greeting adorations, perhaps to be accompanied by hand gestures and to be recited to statues in the temple. The second part which in three instances includes the Sumerian term ŠU.SI = Akkadian *ubānum*, 'finger'. In my hypotheses two fingers correspond to the size of a semitone fret and thus this may relate to the position of specific frets on a lute. Both parts will be investigated separately.

The colophon of the first part, line 12 of the reverse, tells us that this tablet contains 5 or 6 *ikribu* which are types of prayers. The text denotes specific gods to specific strings. Line 1 of the obverse starts with di-iš-su *qud-mu-ú* (fore-string). Line 2 has me-in *ša-mi-ši*, 'two', 'next string' followed by the name of the god *Enmešarra*. Line 4 has e-šà *šalšu*, 'three, thin string', and mentions a 'Great Goddess, creatress of god and man....'. Line 6 has l]am-ma *a-ba-nu*, 'four, created by Ea-string', mentioning the gods *Šullat* and *Ḫanis*. Line 8 has *ḫa-an-šu* , 'five, fifth string' qualifying a function of that string/note stating that it is like the 'open-tuning-interval'.

The equation is simple. We have the number of a string followed by a type of song and the name of a deity to whom the song is devoted. The string number would equate to the top note of the scale which starts on this string, relating to the order of modes that we have in the second chapter of UET VII 74 and in other texts. Thus 1 would be the scale of *išartum;* 2 would be *kitmum;* 3 would be *embūbum;* 4 would be *pītum* and 5 *nīd qablim*.

The second part presents a much more complicated scheme. The presence of the statement: [number] ŠU.SI.MEŠ = x fingers, in relation to my assumption that two *ubanātu* equate to the Babylonian *apotomē* which equals a semitone of 119 cents, has lead me to hypothesis that this second part of the text deals with the position of frets or other fingering marks on the neck of the lute.

Since the iconography of the lute has shown that some were fitted with frets or other marks as well as with three strings, usually. I believe that there were only three lines on the reverse of the tablet. They were introduced by the determinative SA[1](pitnu, 'string'). The lines just under the double line and those from 16 onward would have been explanatory.

SA, in 13 (a) is followed by and then by a glossenkeil, the typed colon in transliteration which is used here to separate a term from its gloss ḪUŠ BI.A = *ma*-AZ-*ru*-*tu* is obscure but derivation from ms/ṣ/ zr 'to hinder; close; with-hold; restrict' is possible for the Akkadian. Sumerian ḪUŠ = 'angry' makes little sense in this context[2]. Another glossenkeil follows the Akkadian term with the purpose of introducing a comment. Generally the hemistich in lines (b) locates fingers, *i.e.* 13 (b)…one with the second not brought near; 14 (b)…at the head of …upper strings…;15 (b) twice below…; …together….

We shall first attempt to understand the prefatory equation in the three lines:

13 SA ḪUŠ BI.A : *ma*-AZ-*ru*-*tu*
14 SA DU : *pismu*
15 SA SI.SÁ : *išartu*

Of these terms only two are known: *pismu* and *išartu*. From these two only one is understood: *išartu*. It was suggested earlier that *pismu* may have meant 'interval' whilst Duchesne-Guillemin[1] thought it the term for 'octave'.

My hypothesis is that the opening terms in line 13, 14 and 15, name the three strings of the lute. The string named in line 15 as SA SI.SÁ, would equate to the top note of the scale of the same name and thus be a 'c'. Following the principle that their scales were descending then the other two strings would be located below this 'c'. The interval which separated the strings is difficult to assess. If we refer to my previous hypothesis of the god-numbers then it is possible that it was the fifth, which is the ratio of *Anu* to *Ea* = 60:40 = 702 cents that was used as a fret or a mark on the bass string fret.

1 SA is not listed a determinative *per* se, but it serves this purpose in musical texts.
2 This term might indicate the tritone.

This being used for the tuning of the second string. The same principle would have applied to the second string. Thus the strings of the lute would have been tuned as:

1) 13) SA ḪUŠ BI.A : *ma*-AZ-*ru-tu* : b flat
2) 14) SA DU : *pismu* : f
3) 15) SA SI.SÁ : *išartu* : c

Now about the commentary in 13: *ša rigim* SA.MEŠ-*šú lapati aḫameš* 1-*e la qurrub*, ' the sound of its strings to play together, one with the second not brought near'.

This can be interpreted as: 'the fret x is placed at the distance of the interval between two strings of the lute, when one string is not tuned to the same pitch. Thus when one is tuned at the distance of a fifth from the other' this would indicate that string 1 is given a fret which is placed to produce a fifth. If this first string was a 'b' flat, then this fret would be an 'f '. The idea that 'one with the second not brought near' distinguishing the fifth from the unison probably comes from the possibility that they may have had double strings and that the lute strings were tuned a fifth apart; tuned to the unison or simply that they started with all strings tuned at the same pitch.

For the reason that the three strings are running along the same neck, the fret for the first string would have been shared with the two others. Subsequently the commentaries for the other two strings would also have applied for the three.

Now, the commentary on the second string:

rutu [(x)] *petāt* ŠU.SI-*šú* RA-[(x)]
ina re-eš ⌜x SA.MEŠ AN.TA.MEŠ KAB![(x)]
'half cubit span is open, his fingers.....at the head of....upper strings'

If we refer to my hypothesis of the god numbers which determines that the speaking length of a lute string measured one *ammatum*, being approximately 50 centimetres, then the *rutu* would relate to a fret placed at 25 centimetres being half its length. This would be the octave fret determined by the ratio of *Anu* to *Sin* = 60:30 = 1200 cents.

1 *RM* 52 (1966), 158, 160.

Finally, the commentary on the third string:

2 ŠU.SI.MEŠ *šá* ⌜x [x x] ⌜x [(x)] ⌜x
2 -*ma* KI.TA ⌜x x
'2 fingers which....twice below....'

This is extremely obscure but there is mention of '2 Babylonian *apotomē*, which equal 119 cents. Line 16 (a) and (b) are even more obscure but we have some measurement: '2 fingers' and a comparison of sounds with *aḫameš*.

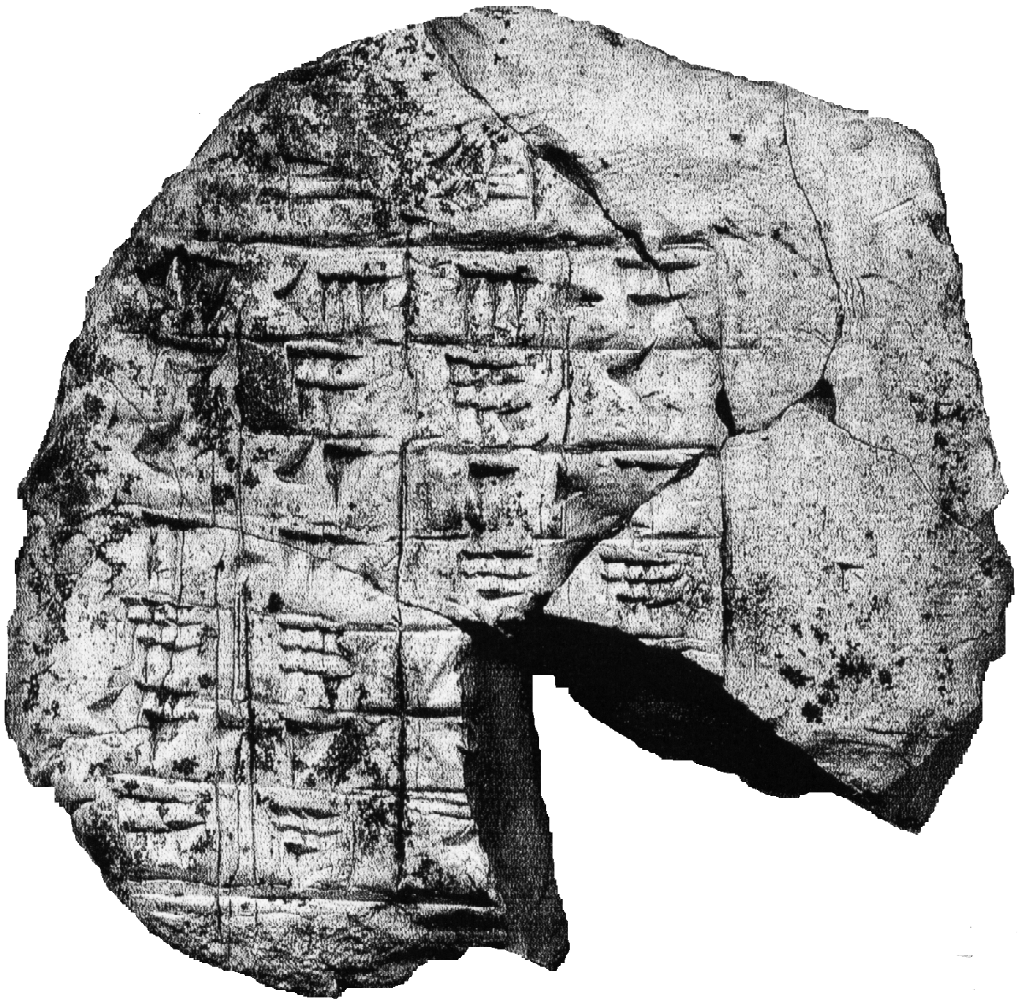


Plate 15a. Photograph of the anonymous tablet

An anonymous O. B. Music Text

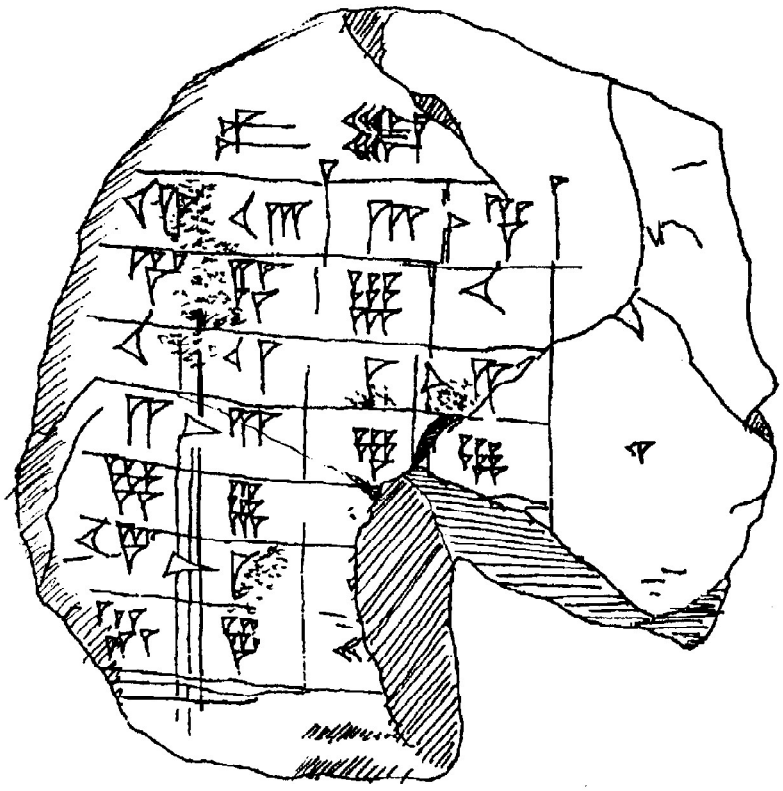


Plate 15b. Hand copy of the text.

1.1		PA	TU	
1.2	12	13	3	4
1.3	4	5	9	10
1.4	10	11	1	2
1.5	2	3	7	8
1.6	8	9	[13	14]
1.7	14	1	[5	6]
1.8	6	7	[11	12]

Figure 24. Transliteration of the text.

Introduction

The ownership of the tablet is unknown to the author. It was after the representative of the owner requested Dr Irving Finkel's opinion that my name was put forward as specialist in the matter. I wish to say that I am completely uninterested with quarrels of ownership or others and that I am only concerned with the academic value of the text and wish that the owners would come forward so that the text may be recognised.

Philology

The epigraphy, along with the shape of the tablet and that it had been recycled suggests that it is old Babylonian. It is of a poor hand which further points out that it probably is a school text. The student who inscribed it, possibly in haste with some elementary knowledge of the script, might have made erratic substitutions in the header. He would have written PA for *pá-pá*, 'to intone, speaking of the voice of strings' and TU *erēbu*, *nērebu* or *ēribu* 'to enter, entry or beginning', for TU_6, tû, *šiptu*, 'incantation'. Thus the header would have translated as '*Intonation of the Incantation*', or something to that effect. However, this hypothesis is unsatisfactory on philological grounds.

The text is numeric and is produced in four columns with 4 rows. Each cell contains a single number ranging from 1 to 14. The presence of separation signs would induce that the two left columns are in fact col. 1 and that the two rights ones are col. 2. We shall therefore refer to them as such. Wilson thought that the left column should be read independently from the right one whilst Finkel assumed that the two columns should be read continuously.

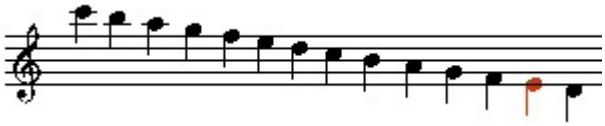
Musicology

That the numbers range from 1 to 14 suggests that these equated to two consecutive heptatonic musical scales since this sequence of numbers fits with no other known at present, outside music theory. However, this text, which at first reading seems straight forward, lends itself to a more complex analysis.

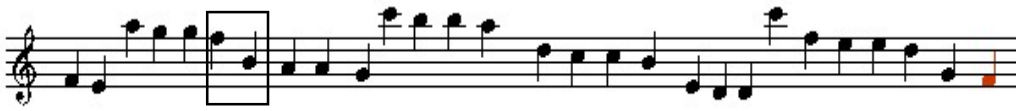
If the text is musical and consists of two consecutive heptatonic scales, there are three essential parameters that need to be addressed. Firstly the direction of the system, either ascending or descending; secondly the identification of the scales; and thirdly the instrument for which the system was devised, if the text is not pure theory.

First hypothesis

According to the late Professor Gurney[1], the scale was descending and this is now generally accepted. Consequently the system should be taken as such. In this case number 1 would correspond to the highest note and 14 to the lowest. For the sake of demonstration, if we assume that the treble note 1 was 'c', we have the following:

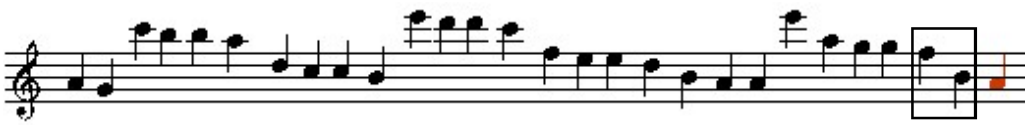


If the system were applied to this descending scale with 'c' as the uppermost note, and if the left and right columns are read consecutively, we have:



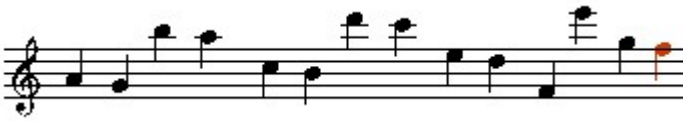
This arrangement shows that had the span of the system started with top 'c' it would have been unsuitable because it would have generated a tritone between its 6th and 7th note. Thus the 7th note would have needed to be lowered by a semitone to become a 'b' flat, and so would have had the rest of the sequence. We need transposing to fit in with theory.

The only descending system which fits is the descending heptatonic scale starting on 'e'. Its application to our text generates the following:

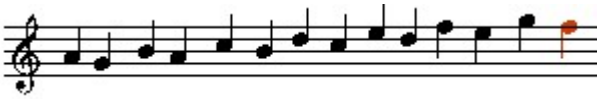


The tritone now appears between the antepenultimate and the penultimate notes of the system. The penultimate and the ultimate notes link up with the first and second notes revealing that the system is cyclical. The tritone cannot be placed anywhere else for the reason that since the Babylonians perceived this interval as dissonant and qualified it as *la zaku*[2], they would have placed it at the end of the system where it naturally fell. If the left and right columns are to be read independently, the left column produces the following:

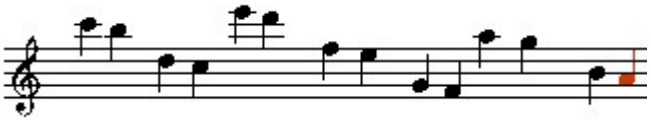
1 UET VII 74, op. cit.



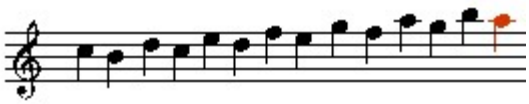
If this pattern is reduced to its shortest span, we have:



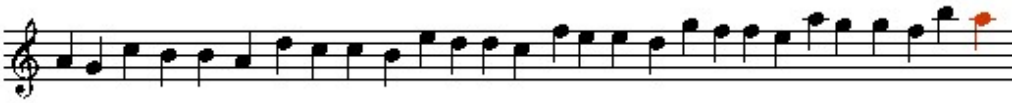
And the right column:



If this pattern is reduced to its shortest span, we have:



Both columns produce the octave and not the heptachord.
And if both columns are presented in this fashion, we have:



Now the span covers a decachord.

This shows that whether the columns were to be played separately or consecutively made no major difference, at least in the reduced span. If it were the harp that was intended, the 14 notes of the system would have had the purpose of locating various interval jumps on a 14 stringed instrument.

The reduced span of the system either indicates that the system was devised for the octochord or the decachord, or for the octochord with different tunings, in respect of UET VII 74.

Another matter arises in support of the first hypothesis. The left col., l. 5 and l. 7 shows distinct wedges between their numbers. In the right col., these appear in l.2, and l.4. These signs correspond to degrees 14 – 1 – 2 – 3 and 4. If note 14 is transposed two octaves higher, we have f-e-d-c-b which is the tritone in the system, a diminished fifth. The signs marked the intervals which placed the tritone within the system.

We know that the tritone was the basis for the scale structure at the O.B. period and therefore it would have been appropriate

to indicate where this tritone was placed.

Since the system covers two heptachords, the tritone also appears between numbers 7 and 11.

Most of our learned colleagues have proposed that the O.B. scale was heptatonic on the basis that the nine strings named in UET VII 126[1] contained the heptachord. We maintain that had they named 9 strings it is because their scale was enneatonic, not heptatonic, otherwise, they would have only named 7. We have demonstrated that the enneatonic scale came from the Sumerian theory which, we assume, was pentatonic. The structure of the Sumerian lyre would have ideally provided with two symmetrical pentachords running from each end of the instrument, hence the 'inward' notation: 1-2-3-4-5-4-3-2-1. The Babylonians would have adapted the Sumerian system from penta to enneatonism but using the descending diatonic system. Now the only complete music text written is the Hurrian hymn(?) H.6. Its colophon says that it is written in the mode of *nidqibli* which is the enneatonic descending scale of E: e-d-c-b-a-g-f-e-d. The system under observation is written in the same scale but is extended to a span of 14 notes. We are inclined to believe that the system under scrutiny was not a series of two separate heptachords: e-d-c-b-a-g-f + e-d-c-b-a-g-f, but consisted of two conjunct enneachords: e-d-c-b-a-g-f-e-d and g-f-e-d-c-b-ag-f. This would have allowed for the playing in the modes of *nid qiblim* and *kitmum*. Since each mode is bimodal, in our modern perception, the system would have allowed the playing in the modes of e,d,g and f.

Metrology

The analysis of the system reveals that it consists of alternations of degrees producing the following pattern: tone; eleventh; tone; semitone; fifth; tone; semitone; eleventh; tone; tone; fifth; semitone; tone; fifth; tone; fourteenth = (semitone); fifth; tone; tone; tritone and tone. It is a succession of 2 contiguous degrees separated by larger intervals. As we have established that the system is cyclical, then transposition within a circle will help understand the theoretical nature of the system:

1 UET VII 126, Vol. VII.

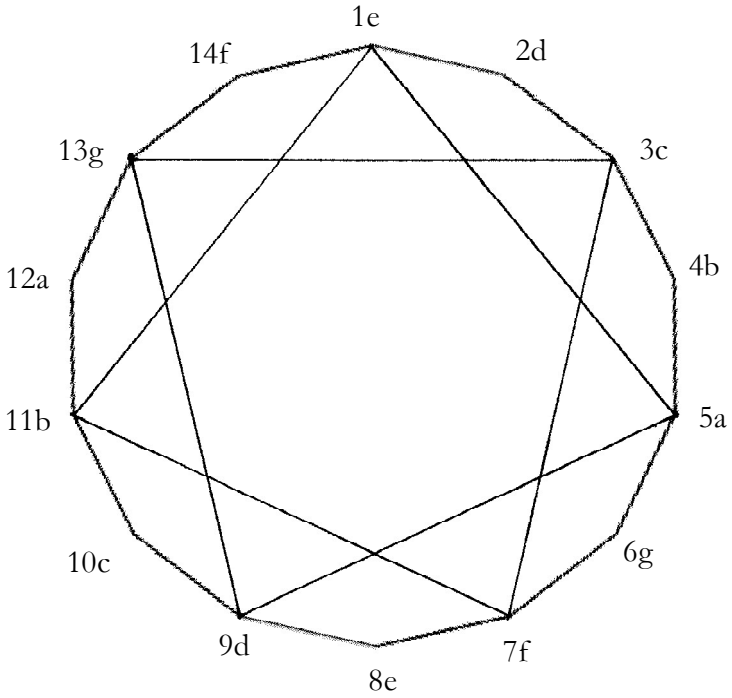


Figure 25. Tetrakaidecagon.

The notes located at odd numbers, which produce perfect fifths between them (exception made for the diminished fifth, the tritone, the penultimate, of the sequence), produce a heptahedron. This is not surprising since we have assumed that the system consisted of two descending and consecutive heptachords. If read clockwise, as the system is descending, the intervals produce a series of descending fifths: e-a; a-d; d-g; g-c; c-f; f-b; g-e which give a span of 15 degrees (15 = 1) since the concluding note is an 'e'. The intervals generated by the angles of the heptahedron yield thirds, major and minor.

The structure of the system shows that the text was well conceived. However, it starts with 'a'-12 and not top 'e'-1. The reason for this is probably that the author of the exercise dictated it to his students so that they may practice their skills, starting on positions others than the fundamental one.

Also, the text produces wide intervals such as the eleventh e-a; g-c which would have implied a knowledge of the hand stretch for the octave and then the fourth, if this was devised for the harp.

Rendered in musical cents, the system gives the following values in Cents: 2400; 2196; 1992; 1902; 1494; 1290; 1200; 996; 792; 702; 498; 294; 90; [0].

The intervals given in this progression are:

1- semitones measuring	90 cents
2- tones measuring	204 cents
3- a minor third measuring	294 cents
4- fourths measuring	498 cents
5- fifths measuring	702 cents
6- a tritone measuring	588 cents.

Figure 26. Intervals in cents.

Organology

If we agree that the system consisted of 2 consecutive descending heptachords, or two conjunct enneachords, then we have theory applied to a specific instrument rather than pure theory. This is based on the knowledge that another O.B. musical text names and numbers 9 strings only, not 14, in agreement with theory. Since there are 14 notes listed, it is axiomatic to state that the system applied to an instrument with 14 strings rather than to a theoretic system of 14 notes. However, we have no iconographic evidence of any fitted with 14 strings at that period. There are Assyrian harp models with 15 strings; PU-ABI's boat-harp had 13 and other contemporary lyres had 11, but this was some 850 years earlier. However, the text under disquisition provides with textual evidence for the presence of 14 strings. The absence of iconographic material must not obnubilate textual evidence.

The most likely instruments able to support our system would have been the harp, but also the lute. The harp seems a likely candidate since such an instrument fitted with 14 strings would present no technical problems, at the O.B. period. For the lute, the hypothesis is equally sustainable insofar as such instruments fitted with 2, 3 and perhaps 4 strings are known during the same period. Had the neck been fitted

with 4 strings and frets, the instrument would have been able to produce the 14 note system of our text. However, if this were the case, there would be a problem with the placing of the semitone frets in relation to tone ones. However, there is no evidence, from the iconography, of fretted necks in lutes. It is also possible that the position of frets was marked rather than they protruded, or that they were set independently, making the system possible, but this is unlikely as we have to bear in mind that this would have hindered the playing in different modes. Its remains, therefore, that this 14 note system could have applied to both the harp and the lute. Other instruments such as the lyre are to be excluded because they do not provide with an adequate scaling for the hosting of two consecutive heptatonic scales. It is very doubtful that this system was devised for aerophones or percussion, obviously.

Another problem arises from other musical theory texts. Firstly, UET VII 126[6], of the early first millennium BC names nine strings and numbers them in an inwardly fashion as 1-2-3-4-5-4-3-2-1. Secondly, UET VII 74, an O.B. text, instructions for the tuning of the harp, gives the same equation.

Both texts imply enneatonism. This does not exclude the practice of heptatonism, of course, but there is the matter of the numbering of the strings which differs from the present text. This can be explained by the fact that the instrument for which this new text was devised, with its 14 strings, would not have allowed for the conventional 'inward' numbering.

Coming back to the harp, it is our contention that the system would not have been of great purpose for a student. Had the teacher wanted to train his musicians in the playing of wide intervals, there would have been far better techniques for this. It came to our mind that the text might have been a musical dictation rather than an exercise but the lack of explicative notes makes it difficult to assess the hypothesis. Thus the idea that the lute was the instrument for which the system was devised comes under scrutiny.

5 UET VII 126.
6 Op. cit.

Second hypothesis

Organology

During the O.B. period morphology distinguishes two principal types of lutes. Firstly we have the long and thin necked models and secondly the shorter types with wider necks. It is assumable that the wider the neck, the more strings it hosted. However, in addition to the number of strings for the lute hypothesis, we have to add the matter of the positioning of the strings and of their tuning. In all types of lutes, the frets closest to the neck produce the lowest notes. The earliest lutes of the 10th century AD described by al-Farabi in his Great Book of Music are indubitably fitted with four strings whilst the tunbur, the long necked lute, had two and that their lowest strings, in both types, were always placed to the left of the neck when facing the instrument. It is difficult to assume that this had been the case three millennia before.

Despite of the fact that the Mediaeval Arab scales are descending in nature, lutes were strung in the same fashion as they are to this day. The lowest string is placed to the left of the neck. This, however, does not exclude the possibility of playing descending scale systems on it. Therefore we shall used the type with 4 strings as paradigm.

Since the second hypothesis rests on the idea that it was the lute that was the instrument for which the system under scrutiny was devised, a complete reconsideration of the musicology must be undertaken in relation to the proposed organology.

The earliest known description of an Arabian lute dates from the middle of the tenth century, of a ninth century instrument. This clearly attests of the presence of 4 strings arranged in such a way that facing the instrument, the lowest string is to the left. The organology of the lute makes of it a naturally ascending instrument as the notes ascend as their frets get further away from the nut of the instrument.

It is therefore natural that the lowest note generated by the first free string be numbered 1, and so forth. However, the descending nature of the Babylonian scale would not exclude the possibility that the numbering was kept descending. Thus we are faced with the following problem : was 1 the highest note or was 1 the lowest. The system in our text must therefore be put in equation with the stringing/ fretting of the lute. It is appropriate to add at present that on the modern guitar and other related instruments, the highest string is called the first string. Could this be a reminiscence of the past is hard to say. We can further add that on the guitar and the violin, the first strings are 'e', the same note in our system, in the descending.

Musicology

If we think that the lute used the descending system, then the musical result is similar to that proposed for the harp: same notes from the same scale(s). In this case the strings of the instrument would be tuned in fifths starting with the lowest, f, then c-d-a. The tablature for this hypothesis is shown below:

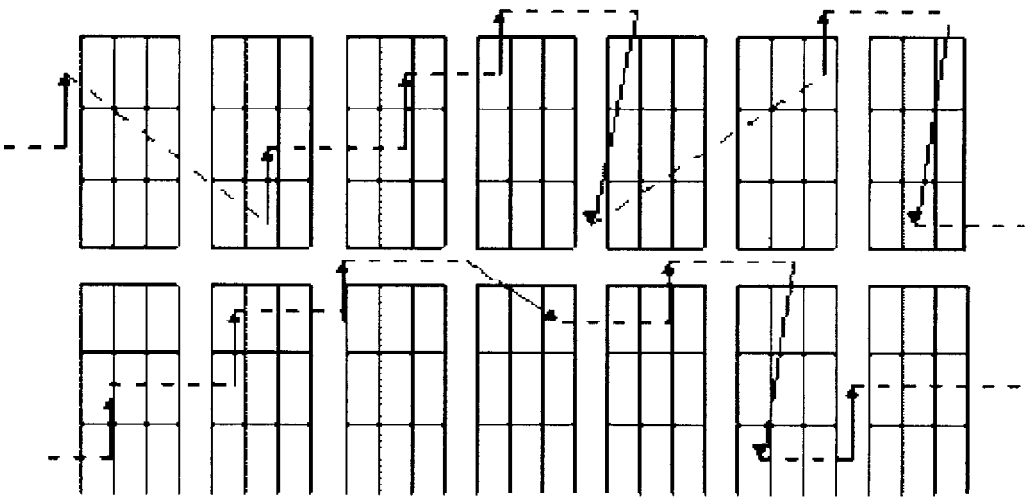


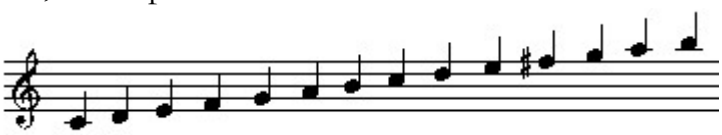
Figure 27. Fingering pattern.

The fingering in this arrangement is practical, and consists of the following fret movements:

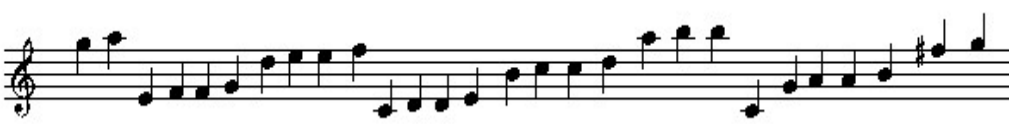
1	3 >			0
2	3 >	2		
3	3 >			0
4			1 <	0
5		2 <	1	
6			1 <	0
7		2 <	1	
8	3 <	2		
9	3 >			0
1 0			1 <	0
1 1			1 >	0
1 2			1 <	0
1 3		2 <	1	
1 4	3 <	2		

Figure 28. Fret movements.

If the system were ascending, then it would be ascending scale of 'c' for the reason of the location of the tritone. In this case the instrument would have hosted another tuning of its strings: c-g-d-a where the semitonal frets would be located between the second and third frets of the 'c' and 'g' strings. Now, because of the fret arrangement, the second fret of the 'd' string would for organological reasons become an 'f' sharp thus producing a tritone with the last note of the system, the top 'b':



Consequently the system would now read:



The fingering movement reveals a much clearer pattern:

1	3 >			0
2	3 >	2		
3	3 >			0
4			1 <	0
5		2 <	1	
6			1 <	0
7		2 <	1	
8	3 <	2		
9	3 >			0
1 0			1 <	0
1 1			1 >	0
1 2			1 <	0
1 3		2 <	1	
1 4	3 <	2		

Figure 29. Fret movements.

Now the matter of the markings between degrees 14-1; 1-2; 2-3 and 3-4 in respect of the second hypothesis is that they also produce the tritone as they did in the descending system.

With regard stringing and fretting of the lute, the choice of an instrument fitted with 4 strings was made on the basis that a double octave lute, of which the strings are tuned in fifths, is the only possibility for hosting the system.

We shall now attempt to determine which was the tuning and fretting that was ideally suitable.

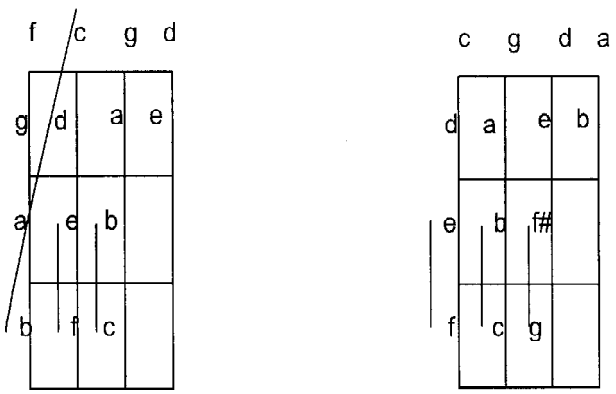


Figure 30. Hypothetical tuning.

The frets on the diagram to the left are in function of the descending method. The semitones are placed unevenly and are not practical because the bass string generates a tetrachordal tritone between the free string and the third fret. Therefore this method is rejected. On the other hand, the frets on the diagram to the right show that the tritones are evenly placed allowing for the same fretting on all 4 strings. Therefore this method is the most likely.

Conclusion

It is our contention that this O.B. text shows a system that was

1- that it was devised for a lute rather than the harp.
2- that the lute was fitted with 4 strings.
3- that the strings were tuned in ascending fifths: c-g-d-a.
4- that the system was ascending c-b'.
5- that the system was naturally restricted to 14 degrees.
6- that degrees 14-1/1-2/2-3/4-3 singularised on the tablet indicated the location of the generative tritone.

It is therefore made evident that whilst the O.B. harp hosted a descending system, at least another ascending method was used for the lute for reasons of organology. The systems were distinguished by the fact that whilst the harp notation was given in terms of intervals, the lute notation was given in ascending numbers. The text further attests that frets were used and that their values, tonal and semitonal, were purposely calculated.

However, and most significantly, the discovery of this text attests of a music syllabus in educational institutions some 4000 years ago.

There are other cuneiform fragments which have not been included within the chapter on theory for the reason that they are very late texts dating from the Persian empire and their content is very obscure. These are i) BM 78878(S.H.Langdon, Gaster Anniversary Volume, pp. 335ff.), obverse ii) *SB*H, no. 12 obverse; lines 1-19 restored and duplicated by *B*L, 158 obverse; lines 14-39 duplicated, re-stored and continued by BM 78878 reverse; lines 31-39 duplicated, restored and continued by K9291 *(BA,* V, 630-31). iii) *SB*H, no. 12 reverse; lines 5-9 duplicated by *B*L, 158 reverse, which then concludes with catch-line, *šalšu nisḫu* and colophon.

The Converse tablet begins by the catch-line of *S*BH, no. 12 and its catch-line has: [ur].sag a.ma.ru.ḫu.luḫ.ḫa. K10303 duplicates the last few lines on *SB*H, no. 12 rev. and the first six lines of the Converse tablet but with reccensional variants. K8399 *(B*A, V, 663) has a reverse which could be a duplicate of the Converse tablet reverse 13-19. The other pieces are *B*A, X, 97 and 98, and K4836. They are unpublished.

The characteristic element common to these hymnic texts is that they include evident and multiple repetitions of vowels either at the beginning, middle or end of certain words which are immediately reminiscent of some melismatic indication. There is no evidence in any of the texts of melodic or rhythmic notation. *TC*L, 6, 56, obverse 2 has: a.e.e.e.ta.a.e.e.e.a.AN *an-nu-u.*

The Converse tablet has:

a) *ana* ŠÌR[(..)]x.bi.a urú.šé a.⌈UD.DU nu.me.a[..)[x]x u.a
Obv. 28 (gi is perhaps part of the gloss also)
b) *è/lil* a ku diri è[n]-du-u a. DU nu.me.a *i-lu u i-lu-u ana* ŠÌR-*ru*
Rev.5
c) e.e na.ám zé.eb.ba *ana* ŠÌR-*ru*
Rev.6
d) e.e.ta.a.e.e.a *an-nu-u* a *aninu-u ana*⌈DU_{12}-*ru*

Figure 31. Converse tablet, transliteration.

BOOK II

The Hurrian hymns

Table of contents

The Hurrian hymns 111
Table of Contents 112
List of plates 113
List of figures 114
Photograph of H 6 115-116
Liminary 117

a) Wulstan's hypothesis 118
b) Duchesne-Guillemin's hypothesis 119
c) West's hypothesis 120
d) Other hypotheses 120

Methodology 121

Texts:
H2 134
H3 138
H4 (R.Š. 130) 139
H5 (R.Š. 132) 141
H7 (R.Š.19.155) 143
H8 (R.Š. 136) 144
H9 (R.Š. 19.146) 146
H10(R.Š. 19.148) 147
H11 (R.Š. 19.1500 148
H12 (R.Š.19.147) 149
H13 (R.Š. 19.164 d) 150
H14(R.Š. 19.156) 151
H15 (R.Š. 19.143) 152
H16 (R.Š. 19.164 a) 152
H17 (R.Š. 19.157 d) 153
H18 (R.Š. 19.15 d) 154
H19 (R.Š. 19.149) 154
H20 (R.Š. 19.142) 155
H21 (R.Š. 19.154) 156
H22 (R.Š. 19.164 c) 157
H23 (R.Š. 18.282) 158
H24 (R.Š. 19.144) 159
H25 (R.Š. 19.145) 159
H26 (R.Š. 19.151) 160
H27 (R.Š. 19.153) 161
H28(R.Š. 10.1576 162
H29(R.Š. 19.157a) 162
H30(R.Š. 19.164) 163
Fragments 164

List of Plates

Plate 1, Wulstan's 1971 interpretation of H6 118
Plate 2, Duchesne-Guillemin's 1976 interpretation of H6 119
Plate 3, West's 1993 interpretation of the melodic line in H6 120
Plate 4, Kilmer's 1974 interpretation of H6 122
Plate 5, Dumbrill's interpretation of H6 130
Plate 6, copy of H6, obverse and reverse 133
Plate 7, copy of H2 134
Plate 8, interpretation of H2 138
Plate 9, copy of H3 138
Plate 10, interpretation of H3 139
Plate 11, copy of H4 139
Plate 12, interpretation of H4 140
Plate 13, copy of H5 141
Plate 14, interpretation of H5 142
Plate 15, copy of H7 143
Plate 16, interpretation of H7 143
Plate 17, copy of H8 144
Plate 18, interpretation of H8 146
Plate 19, copy of H9 146
Plate 20, interpretation of H9 147
Plate 21, copy of H10 147
Plate 22, interpretation of H10 148
Plate 23, copy of H11 148
Plate 24, copy of H12 149
Plate 25, interpretation of H12 150
Plate 26, copy of H13 150
Plate 27, interpretation of H13 151
Plate 28, copy of H14 151
Plate 29 interpretation of H14 151
Plate 30, copy of H15 152
Plate 31, copy of H16 152
Plate 32, interpretation of H16 153
Plate 33, copy of H17 153
Plate 34, copy of H18 154
Plate 35, copy of H19 154
Plate 36, interpretation of H19 155
Plate 37, copy of H20 155
Plate 38, interpretation of H20 156
Plate 39, copy of H21 156
Plate 40, interpretation of H21 157
Plate 41, copy of H22 157
Plate 42, copy of H23 158
Plate 43, interpretation of H23 158
Plate 44, copy of H24 159
Plate 45, copy of H25 159
Plate 46, copy of H26 160
Plate 47 , copy of H27 161

Plate 48, copy of H28 162
Plate 49, interpretation of H28 162
Plate 50, copy of H29 162
Plate 51, copy of H30 163
Plate 52,interpretation of H30 163

List of Figures

Figure 1, Kilmer's transliteration of the second part of H6 121
Figure 2, structure of H6 121
Figure 3, intervals of nidqibli and unknown values 126
Figure 4, table of correspondence between Akkadian and Hurrian musical terms 127
Figure 5, recunstruction of lyrics, music and colophon of H6 130
Figure 6, lines 10 and 5 sharing their last and first intervals 131
Figure 7, H2, transcription of lyrics and music 135
Figure 8, transliteration of H3 139
Figure 9, transliteration of H4 140
Figure 10, transcription of H5 142
Figure 11, transliteration of H7 142
Figure 12, transliteration of H8 145
Figure 13, transliteration of H9 147
Figure 14, transliteration of H10 148
Figure 15, transliteration of H11 149
Figure 16, transliteration of H12 150
Figure 17, transilteration of H13 150
Figure 18, transliteration of H14 151
Figure 19, transliteration of H15 152
Figure 20, transliteration of H16 153
Figure 21, transliteration of H17 154
Figure 22, transliteration of H18 154
Figure 23, transliteration of H19 155
Figure 24, transliteration of H20 156
Figure 25, transliteration of H21 157
Figure 26, transliteration of H22 158
Figure 27, transliteration of H 23 158
Figure 28, transliteration of H24 159
Figure 29, transliteration of H25 160
Figure 30, transliteration of H26 161
Figure 31, transliteration of H27 161
Figure 32, transliteration of H28 162
Figure 33, transliteration of H29 163
Figure 34, transliteration of H30 163

Photograph of H6. Obverse.

Photograph of H6. Obverse.

Liminary

The 29 tablets which follow were unearthed during the pre and post war Missions at Ras Shamra conducted by the French scholar Claude Schaeffer[1]. They are written in the Hurrian language with syllabic Babylonian cuneiforms and date from about 1400 BC.

The scribes who wrote these texts were Akkadians or Semites with Akkadian fluency accounting for the Hurrianisation of the original Akkadian terminology, as we shall see later.

The tablets, in all probability, would all have had the same rectangular shape to fit the length of the hand. The writing runs parallel to the longest side and is divided in three. The first part varies with each tablet but generally the text spreads onto the obverse. The text usually consists of one paragraph which ends by a double line, with a double winkelhaken 𒌋𒌋 at the beginning and at the end, on the obverse.

The second part spreads below the double line and consists of Hurrianised Akkadian musical terms which are followed, in most cases, by a number and sometimes preceded, or followed, by a qualificative. The first part gives the verse and the second the music and rhythm. A colophon, which constitutes the third part, runs along the bottom edge of the tablets and states that it is ' . . . a song in the scale of 'x" followed by a qualificative and deities to whom the hymn is devoted. Then follows the name of a scribe, a certain *Ammurabi*; another, *Ipšali* and the name of one of four Hurrian composers: *Tapšiḫun*, *Puḫiyanna, Urḫiya, Ammiya.*

Regrettably, there is only one tablet - reconstructed from three fragments - which came reasonably intact to us, H6 (RŠ13.30 + 15.49 + 17.387). However the others have produced patterns from which I have attempted to reconstruct some of the Hurrian rules of composition.

1 Nougayrol, J.; Boyer, G.; Laroche, E., *Le Palais Royal d'Ugarit III et Planche*s, in *Mission de Ras Shamr*a, Tome IV. Schaeffer, C. F-A (ed.) (Paris, 1955); Courtois, J-C.; Contenson, H., de; Kusche, A.; Vallois, H-V.; Ferembach, D; Dastugue, J.; Charles, R.; Clairmont, Ch.; Miles, G. C., UGARITICA IV, C. F-A Schaeffer, (ed.) (Paris, 1962); Nougayrol, J.; Laroche, E.; Virolleau, Ch.; Schaeffer, C. F-A. UGARITICA V, C. F-A Schaeffer, (ed.) (Paris, 1968);

With regards to the lyrics, our knowledge of the language is still too limited to make much sense but I shall produce parts which have been interpreted.

It is appropriate to begin with the exposition of the various interpretations of scholars who have researched the subject.

a) Wulstan's hypothesis

In his 1971 paper[1] Wulstan assumed that the Hurrianised Akkadian terms of intervals defined a series of notes, which principle had been previously established[2] and that the numbers which followed the expression stated the number of notes to be selected. This is not logical because as a result there would be too many possibilities borne from the numerous combinations of notes from which to choose. This system would complicate rather than simplify the method and thus fail the purpose of musical notation.

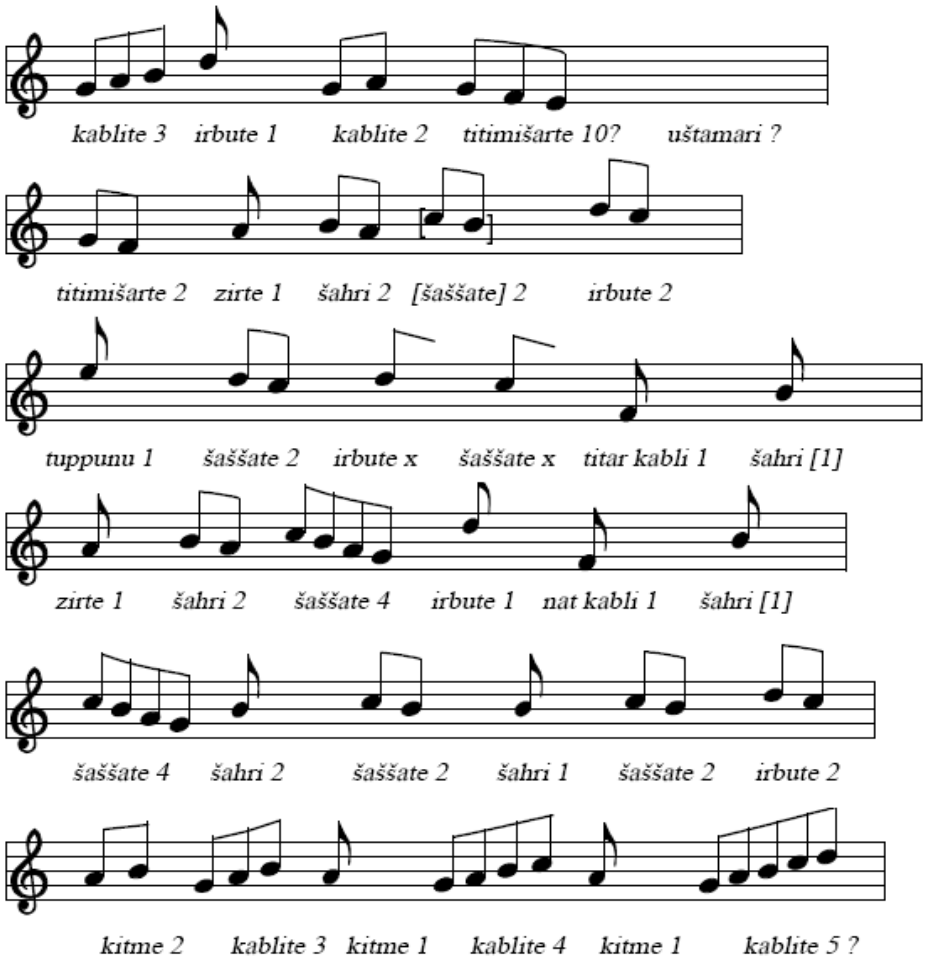


Plate 1, Wulstan's 1971 interpretation.

1 Wulstan, D., *The Earliest Musical Notatio*n, Music and Letters 52 (1971) 365-382.
2 See Book I, CBS 10096.

b) Duchesne-Guillemin's hypothesis

Duchesne-Guillemin's 1982 interpretation[1] assumed that all the notes in the intervals were to be played and that the numbers codified melismatic breaks between recitative sequences. Here, the interpretation is much intuitive and subsequently left exempt of any objective rendering, either melodic or rhythmic.

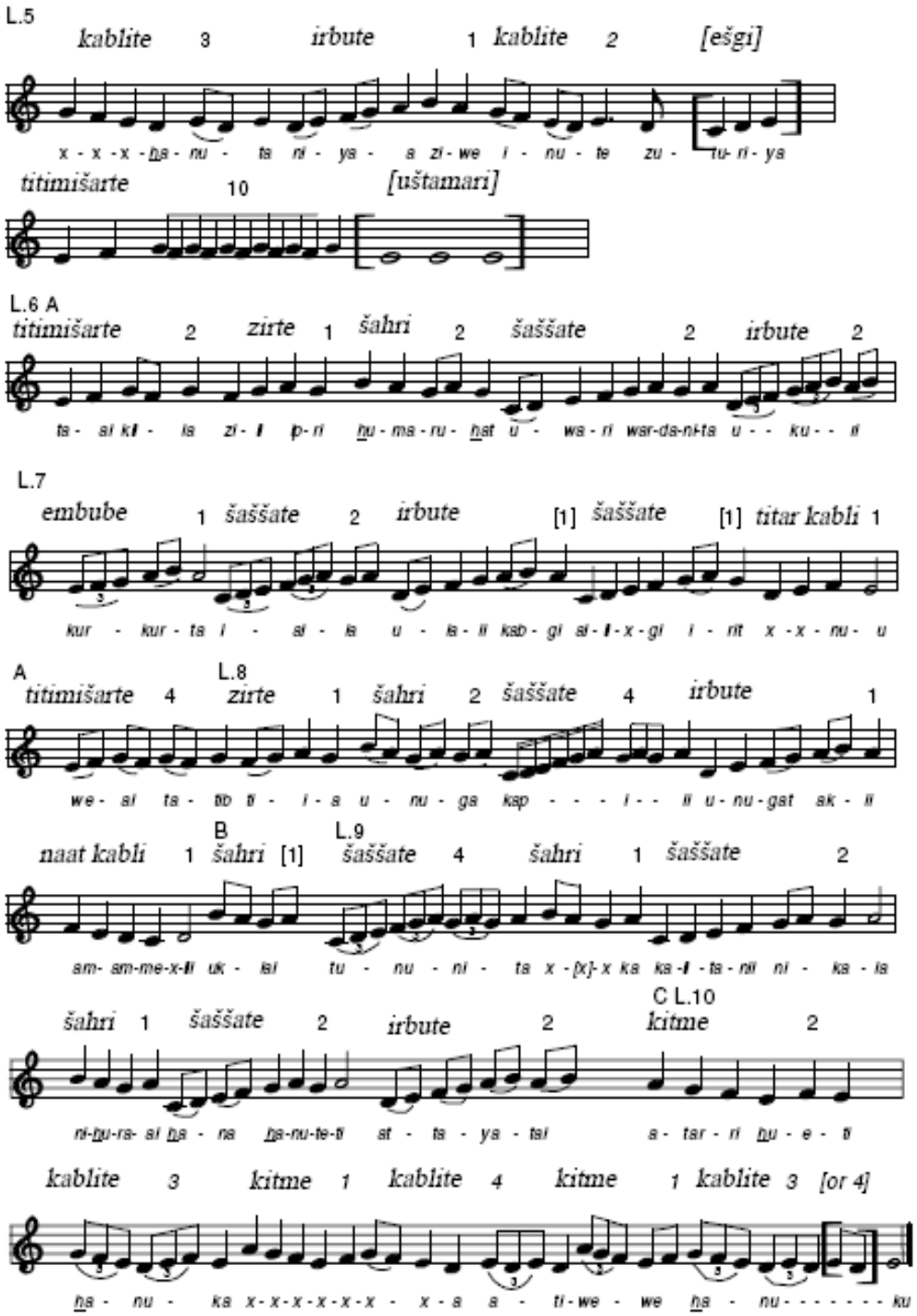


Plate 2, Duchesne-Guillemin's 1976 interpretation.

1 Duchesne-Guillemin, M., *A Musical Score from Ugarit: The Discovery of Mesopotamian Music*. Sources from the Ancient Near East, 2 (1982) 5-24.

c) West's hypothesis

In 1994 West[1] comes with the most rational idea. He assumes it is the second member of the interval which belongs to the melodic line. Then his hypothesis is that the numbers indicate the repetition of the second member of the interval. The resulting melody is very dull. Therefore the question as to why would they have bothered to write down such monotony would itself invalidate the thesis.

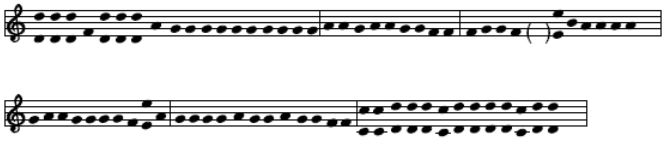


Plate 3, West's 1993 interpretation of the melodic line in H6.

d) Other hypotheses

Other scholars, Kilmer[2] and Smith, Cerny[3] , Thiel[4] , and Arndt-Jeamart think that the notation indicates both members of the intervals are to be played together as harmony and the numerics the number of times the dichord should be repeated. The result here again is poor and we cannot assume that those ancient peoples were so unimaginative.

There is another hypothesis sustained by Kilmer and Smith aiming at the idea that it was not notation but tablature that was inscribed on the tablets. However the premise is refutable because they only used dichords, thus making the idea somewhat pointless. Furthermore, tablature must be understood as a graphic aid for the positioning of the fingers on the strings of some fretted instrument[5] .

Had a tablature system existed it would have looked like one. It would have been a schematic rendering of the strings in relation to the frets and fingers of the player. In the present case we have expressions, letters, numbers or signs which constitute nothing more and nothing less than notation - certainly not tablature.

1 West, M.L., *The Babylonian Musical Notation and the Hurrian Melodic Texts*. Music and Letters 75/4 (1993) 161-179. 2 Kilmer, A.D., *The Cult Song with Music from Ancient Ugarit: Another Interpretation* Revue d'Assyriologie 68 (1974) 69-82; Kilmer, A.D, Crocker, R.L, Brown, R.R. *Sounds from Silence: Recent Discoveries in Ancient Near Eastern Music* BIT ENKI Publications (Berkeley 1976) 22 pp booklet and 12" stereo disk. 3 Cerný, (1988, 62). 4 Thiel, (1977, 1978). 5 It is not the purpose of the present book to discuss the validity of Smith and Kilmer's hypothesis of a tablature but I would like to establish that in the same way cuneiform or hieroglyphic signs can be read either as pictographs or as ideographs, music also responds to the same rules: when it is transcribed with terms and numbers, as is the case with Babylonian music, it is ideographic, and when it is written with some form or other of graphic representation of all or partial graphic elements relatable to one or more instruments then it is pictographic. A tablature is a pictographic transposition of the music and as such involves graphic representation of the music, or rather of where fingers should be placed, on the neck or some other part of an instrument, in order to reproduce the music that was recorded in such a way. Since we have no such graphic representation in Babylonian or Hurrian music, despite the fact that these civilisations have used numerous graphic representations in their tablets, then we have to exclude the principle of the existence of such a tablature with them.

Methodoloy

a) Melody

The method of interpretation is now demonstrated with tablet H6, since it is almost complete, then continuing with the interpretation of the other fragments. Kilmer's transliteration has been chosen as the basis for this interpretation.

5. *qablite 3 irbute 1 qablite 3 ⌈xx xxx⌉ titimišarte 10 ustamari*
6. *titimišarte 2 zirte 1 sahri 2 zirte 2 irbute 2 ?*
7. *umbube 1 sassate 2 irbute [1] sassate 2? titarqabli 1 titimisarte 4*
8. *zirte 1 sahri 2 sassate 4 irbute 1 nadqabli 1 sahri 2?*
9. *sassate 4? sahri 1 sassate 2 sahri 1 sassate 2 irbute 2*
10. *kitme 1 qablite 3 kitme 1 qablite 4 kitme 1*

Figure 1, Kilmer's transliteration of the second part of H6.

A first observation shows that each line includes six terms with the exception of line 6. However it is possible that a sixth expression existed at the end of this line because the surface is very damaged. It would be unreasonable to assume that this last term differs from the others simply because it is unreadable. Furthermore, that the other lines include 6 terms would tend to favour the presence of a sixth one there. Thus we may assume that each line included six terms as shown below.

	I	II	III	IV	V	VI
5	*qablite 3*	*irbute 1*	*qablite 3*	*xxxxx*	*titimišarte 10*	*uštamari*
6	*titimišarte 2*	*zirte 1*	*šaḫri1*	*zirte 2*	*irbute 2*	*xxxxx*
7	*umbube*	*šaššate 2*	*irbute 1*	*šaššate 2*	*titarqabli 1*	*titimišarte 4*
8	*zirte 1*	*šaḫri 2*	*šaššate 4*	*irbute 1*	*natqabli 1*	*šaḫri 2*
9	*šaššate 4*	*šaḫri 1*	*šaššate 2*	*šaḫri 1*	*šaššate 2*	*irbute 2*
10	*kitme 2*	*qablite 3*	*kitme 1*	*qablite 4*	*kitme 1*	*xxxxx*

Figure 2, structure of H6

Each terms is followed by a number with the possible exception of the fourth of the first line (*5*-IV); the last one in the first (*5*-VI); the last in the second (*6*-VI) and last in the tenth line (*10*-VI). However, the surface is damaged and there is no reason to assume that these terms were not followed by a number. The colophon says that the piece is written in the mode of *nidqibli*, the descending enneatonic scale of E with

tonic D: E-D-C-B-A-G-F-E-D. Since all the surviving colophons of the collection indicate the usage of the scale of *nidqibli*, to the exclusion of any other, it is possible that the series was composed in the same mode[1].

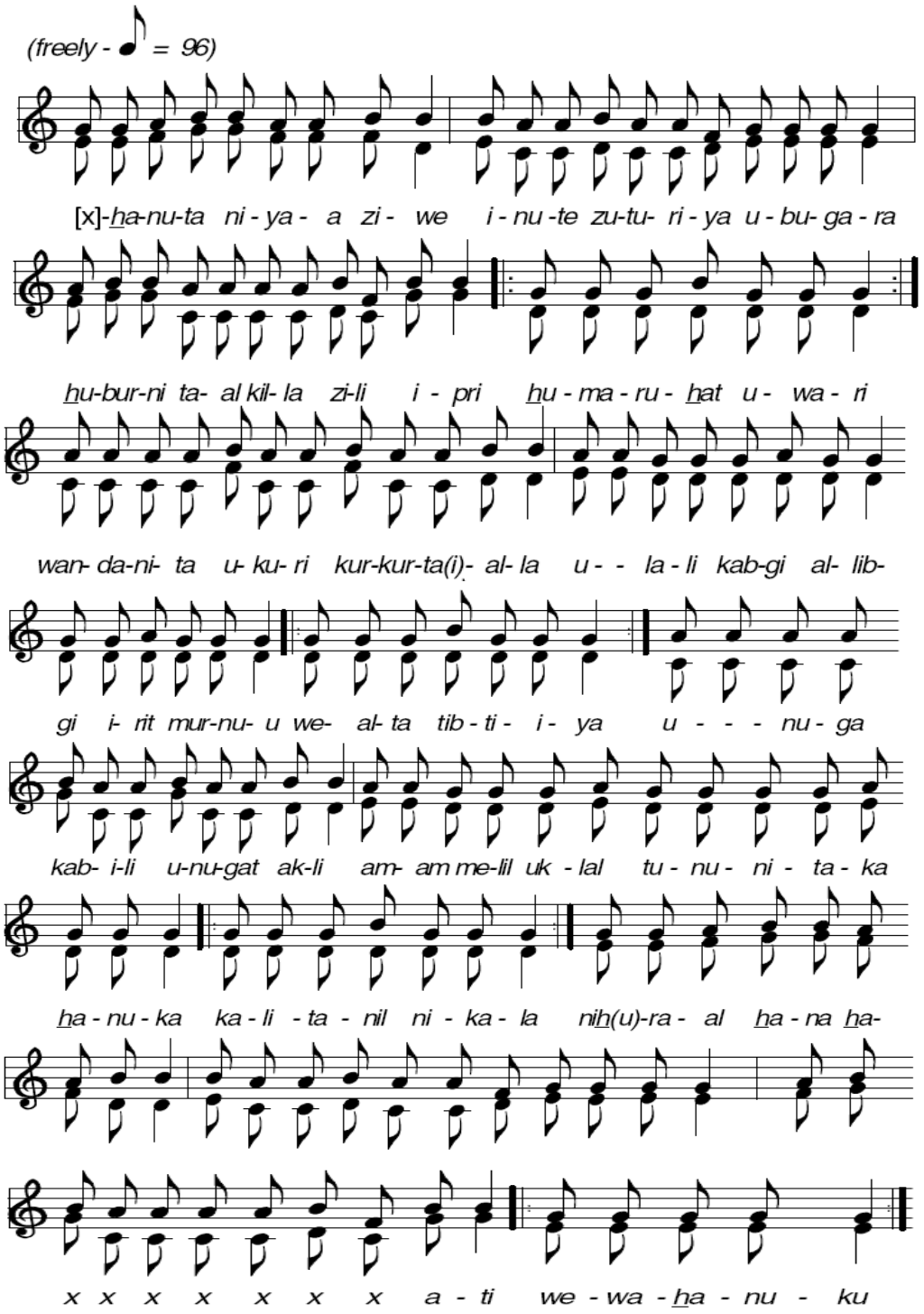


Plate 4, Kilmer's 1974 interpretation of H6.

1 It is assumed that the other fragments in which the name of the scale is missing were also in *nidqibli*.

Therefore we can assume that *qablite* in the first line equated to A-(g-f-e)-D which is a descending fifth and that all other intervals in the text followed the same principle. The interpretation of the hapax legomenon *uštamati* has not yet been discussed but it could be assumed that it was a term for another interval, perhaps different from the fifth or the third and that it could also have been followed by a number.

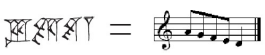
Since the tablets contain both text and music it makes little doubt that the musical notation was accurate enough to match the exactness of the syllabic arrangement in the text. A less accurate rendition would have served no purpose. It is this premise which led to the hypothesis that the intervals listed on the tablets were filled, in other words that they included all the notes between their first and last degrees in order to equate with the number of vocalised syllables in the lyrics. In the case of b-e for example, they would have read b-a-g-f-e. Certain scholars have opposed this idea ignoring the fact that had the intervals been left empty they would have been devoid of any modal purpose because, in an interval, it is the combination of the bass and treble notes with the notes which are included between them which establishes the modal nature of the interval. The two members of a fifth, c and g for example, have little melodic value except if they include d-e-f. Without these specific notes the interval would loose its identity as it could be filled with any arrangement of tones and semitones. It could be c-db-e-$f^{\#}$-g; c-d-b-eb-$f^{\#}$ or any other combination. Analytically the notes b-a-g-f may have been taken as an anacrusis, landing on 'e' on a strong beat to emphasise its purpose in the melody. This system may be perceived at first as somewhat laborious but in essence is very similar to the purpose of grace notes in Scottish pipe music. This system may appear restrictive but it contributed to a certain extent to the making of form in this music.

The syllabic Babylonian rendition of the Hurrian text would have been a subjective one on the grounds that the Hurrian language was not initially designed to be written with the Babylonian syllabic system. Thus it was the privilege of the composer to extend the number of syllables in a word or sentence to fit the notes, in the case the music had been written first, or written concurrently with the text.

The vowel repetitions which are seen in later texts from the Persian Empire[1] period could possibly have expressed comparable melisms. If so it can be assumed that the text was made to accommodate the music rather than the contrary, as would have been the case had it been written in old Babylonian because this language was designed to be written with appropriate syllables. Thus the vocalisation of the Hurrian text would have been subjected to some melismatic manipulation to make it fit within the rhythmic framework of the melody. Indeed there is no evidence that melodies composed some 4000 years ago would have been subjected to the laws of melodic squareness. However, it is axiomatic to assume that they naturally applied because music dance and rhythm always have been indisociable, at least up modern times. It is therefore expected that musical phrases from such a long time ago had some structural pattern akin to our concept of squareness.

b) Rhythm

Let us assume that each of the notes of the interval had the same time-unit value that we shall define as 1. This assumption is made on the basis that there is no reason why each of the notes were not equal. In the case they were not equal, it would have been indicated. Therefore the first interval in the text, *qablite*, is the descending interval of the fifth A-(g-fe)-D, as it is taken from the scale of*nidqibli*[2] (e-d-c-b-a-g-f-e-d).

If we take the quaver as common denominator, with time-unit value of 1, the interval is noted as follows:  = . There would be no reason for the value of the number 1 to be more than doubled because, if this were the case, the value for the crochet would be excluded from this system. Thus logic dictates that one unit of number equalled two units of interval.

This reinforces West's assumption that it was only the second member of the interval which was part of the melodic line. The other notes were either anacrusic or ornamental.

The *résumé* of my hypothesis stresses the following points:

1 BM 78878, the Converse tablet , etc.

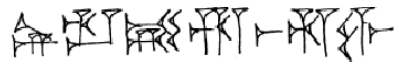
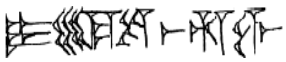
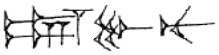
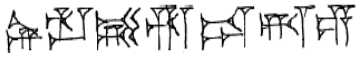
2 Refer to the analysis of UET VII 74 in BOOK II.

1. The intervals listed are understood to include all notes in the interval. They are to be taken descending, or ascending, in the order given in the CBS 10996 text, unless qualifiers indicate otherwise.

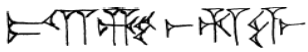
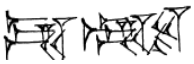
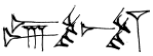
2. All the notes in the intervals have the same time value. 3. The notes in the intervals are anacrusic to the last member of the interval which alone constitutes part of the melodic line.

4. The numbers following the interval terms indicate the time quantities by which the last member of the interval is to be prolonged. One time-unit of a number is equal to two units of interval. The absence of a number would indicate that the last member has the same time value as the preceding one in the interval.

a) ascending fifths

nīš GABA.RI *ašḫuwe*		e’ d’ c b a
išarte ašḫuwe		d’ c b a g
umbube		c b a g f
nad qabli		b a g f e
qablite		a g f e d
kitme		g f e d C
bentamma?pite		f e d C B
nīš GABA.RI *durie*		e d C B A
išarte durie		d C B A G

b) descending thirds

ešgi ašḫuwe		c d’ e’
titar qabli ašḫuwe		b c d’
titimišarte ašḫuwe		a b c
zirte ašḫuwe		g a b
šaḫri		f g a
šaššate		e f g
irbute		d e f
ešgi		C d e
titar qabli durie		B C d
titimišarte durie		A B C
zirte durie		G A B

c) Unknown Values

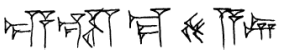
uštamari		*kazae*	
etamašeani		*paḫita*	
ḫapšema		*akkim*	
pugarna		*gieša*	
ḫizaweša			

Figure 3, intervals of *nidqibli* and unknown values.

Correspondence of musical terms

Akkadian	Hurrian
nīš GABA.RI	*nīš* GABA.RI
šērum	*šaḫri*
šalsatum	*šaššate*
išartum	*išarte*
embūbum	*um/embube*
rebūtum	*irbute*
nīd qablim	*nitqibli/nadqabli*
išqum	*ešgi*
qablītum	*qablite*
titur qablītum	*titar qabli*
kitmum	*kitme*
titur išartum	*titimišarte/titiišarte*
pītum	*pentamma?*
serdûm	*zirte*
	ašḫuwe
	turie
	kazae
	ḫizawe/ḫizaweša
abanû	*etamašeani*
ḫamšu	*ḫapšema*
	pugarna/pugarnu
	paḫita
	uštamari
	gieša
	akkim

Figure 4, table of correspondence between Akkadian and Hurrian musical terms.

c) demonstration

If the assumption is taken that there were six intervals per line in the present tablet and add up the numbers of notes per interval and per line adding to this the number of beats given by the numbers following the intervals, then we have:

1) line 5:

qablite	=	five quavers
irbute	=	three quavers
'x'	=	x
titimišarte	=	three quavers
uštamari	=	x

Since theory only gives intervals of 5 and 3 notes thus there is an average of 4 notes per term. The average notes/units of time in this line would therefore be (4 x 6 =) 24.

From 24, 6 is subtracted giving a total of 18 (for the reason explained above) where the last note of each interval is counted in the value of the numbers.

The sum of the numbers (which follow the intervals) is 25, (1+2+3+4+5+10=25) which is then multiplied by 2 (= 50), since the value of the numbers is double the value of the interval time-units this is then divided by the numbers of intervals in each line, 6. This gives a total of 8, to the nearest whole number.

The sum of the numbers following the intervals is 48 (6 groups of numbers following 6 intervals multiplied by the average of the numbers, 8) to which we add 18 being the average interval time-units. This totals 66. Following the same principle for the other lines, we obtain:

5. 66
6. 38
7. 36
8. 36
9. 40
10. 52

Taking 6 as the common denominator for the figures above then it is possible, taking in consideration the poor condition of the right part of the tablet, for the figures to be corrected using 6 as the key. With the following result:

5. 72 ? = 2 x 36
6. 36
7. 36
8. 36
9. 36
10. 72 ? = 2 x 36.

In this case the sum of the 4 lines of verse would have amounted to 144 units and the sum of the refrain, lines 5 and 10, would have totalled the same. The total would have been 288.

It is surprising that the lyrics are contained in 4 lines. Six would have been more appropriate because there are six lines of music. However, the size of the tablet would have been the reason for the discrepancy. The four lines each have 13 terms but there are catchlines shared at the end of 1 and beginning of 2; 2-3 and 3-4.

The catch-lines have the same vocalised length of 7 units:

Line 1-2 *ḫu-ma-ru-ḫat ú-wa-ri* - 1-2-3-4-5-6-7
Line 2-3 *wa-šal ta-tib* ti_4*-ši-a* - 1-2-3-4-5-6-7
Line 3-4 *ka-ni-ta-nil ni-ka-la* - 1-2-3-4-5-6-7

If 3 units per word were taken as an average, then lines 1 and 4 would each have 39 units. Lines 2 and 3 would have 39 -7 (catch-lines) = 32. The total amount of beats would be 64 + 78 = 142. We have 288 units of music for 142 units of vocalised syllables. However, the number of vocalised syllables could easily be corrected to 144 taking variations into consideration, because the lyrics were written on 4 and not 6 lines and repeated twice as indicated by the double winkelhaken signs, amounting to 288.

Transliteration of H6

1.*[x(x)] ḫanuta niyaša ziwe šinute zuturya ubugara kudurni*
tašal killa zili šipri (ḫumaruḫat uwari)
2.*(ḫumaruḫat uwari) wandanita ukuri kurkurta išalla ulali*
kabgi aliugi širit muruʔ nušu (wešal tatib tišiya)
3.*(wešal tatib tišiya) unuga kabšili unugat akli šamšam me-x*
lil uklal tununita kaʔ ḫanukaʔ (kalitanil nikala)
4.*(kalitanil nikala) niḫura ʔšal ḫana ḫanuteti attayašal attari*
taʔeti ḫanuka xxxxxxxxxx šati wewe ḫanuku

5.*[qablite 3][irbute 1][qablite 3][šaḫri 1][titimišarte 10][uštamari = 10] = 60ʔ*
6.*[titimišarte 2][zirte 1][šaḫri 2][šaššate 2][irbute 3][šaššate 2] = 36*
7.*[embube 1][šaššate 2][irbute 3][nidqabli 1][titar qabli 1][titimišarte 2] = 36*
8.*[zirte 1][šaḫri 2][šaššate 4][irbute 1][nidqabli 1][šaḫri 2] = 36*
9.*[šaššate 2][šaḫri 1][šaššate 2][šaḫri 1][šaššate 2][irbute 4] = 36*
10.*[kitme 2][qablite 3][kitme 1][qablite 4][kitme 4][qablite 4] = 60ʔ*

[an-n]û za-am-ma-rum ša nid-qib-li za-l[u]-z[i ša DINGIR.MEŠ TA *[mUrḫiya]* ŠU *[m]Am-mu-ra-bi*

Figure 5, reconstruction of lyrics, music and colophon of H6.

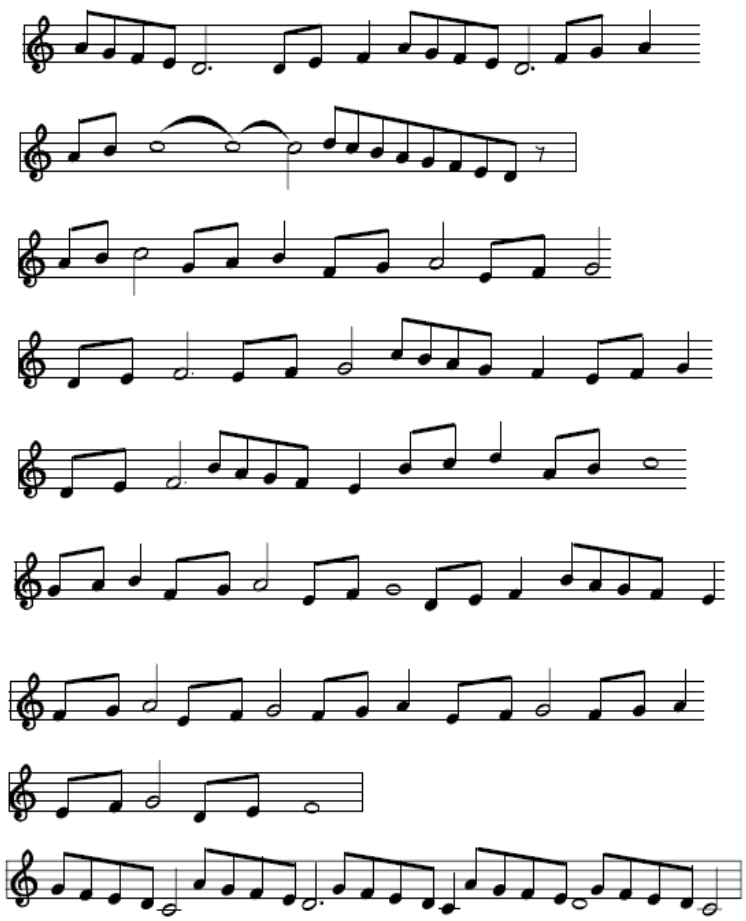


Plate 5, Dumbrill's interpretation of H6.

The term *uštamari* is rendered by the descending enneatonic scale from the interval *išarte* in the mode of *nid qibli*, on the basis that it fits in on two counts both the metric and the melodic. It is indeed very much in keeping with the musical tradition of the Near East. However this remains a subjective treatment only dictated by artistic license.

d) analysis

The colophon says that the piece is composed in the mode of *nidqibli, 'annû zammaru sa nid qibli'* which is the descending enneatonic scale of 'E'[1] : e-d-c-b-a-g-f-e-d. Thus producing more evidence in support of the system being enneatonic since the piece starts with the top note 'a'-(a-g-f-ed) of the second descending pentachord and ends on 'd', the lowest note of the enneachord. It is the progression[2] of this pentachord, towards the lowest note, which sets the general ethos. Thus the mood of the piece is set by its first expression: *qablite*.

The last interval of the piece is the same as the first. The number which follows the last interval may also have had the same value of 3 because the piece was repeated, as we shall see later. However, it would have increased to 4 for the finale and therefore line 10 would have totalled 60 units.

This composition can be divided into 3 parts:

1. Line 5
2. Lines 6, 7, 8 and 9
3. Line 10.

The last expression on line 10 is identical to the first expression of line 5:

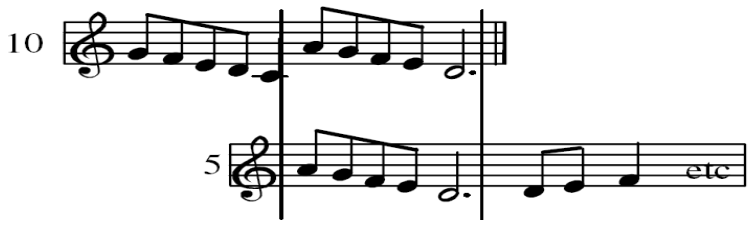


Figure 6, lines 10 and 5 sharing their last and first intervals.

1 This would be also be the case for the whole series. My transcription for the whole series follows this assumption.
2 The arrangement of tones and semitones, in the present paradigm: tone, tone, semitone, tone.

The composition has the usual refrain and verse pattern. The refrain, lines 5 and 10, has a length of 120 units whilst the verse, lines 6; 7; 8 and 9, has 144. The refrain divides in 2 parts, line 5 and line 10. The first part, line 5, is introductory:*qablite* is followed by *irbute*. *Qablite* immediately sets the ethos of the piece. The rhythmic value of its last term which is 3, confirms it. The next interval, *irbute*, is suspensive, even interrogative. This is reinforced by the rhythmic value of '1' for its last member which is almost a question mark. This naturally results in the repetition of the interval which poses the question, having the same rhythmic value of 3. A modal statement has been made to set the first part of the piece as belonging to modal 'd'. Another ascending third, *šaḫri*, follows. It is no longer interrogative or suspensive but simply transitional, leading from modal 'd' to modal 'c'[1] via the interval *titimišarte* which follows: the ascending a-b-c, with 'c' extended to 10 units. The mode of 'c' is confirmed by the first interval of line 6 which reinstates the same interval of *titimišarte* . The verse continues with a dialogue between modal 'd' (minor) and modal 'c' (major) and line 9 gives greater modal interrogation until the last term of the line, *irbute*, leads line 10 to the affirmation of both modes with the alternation of *kitme*, mode of 'c', and *qablite*, mode of 'd', which eventually predominates. It is then shared in the first term of line 5. The piece would be repeated. It is probable that the two last terms of line 10 would have been played *ad libitum*. It is also possible that the piece was sung again with other lyrics or that it lead to another.

Because the piece lends itself to analysis establishes the validity of the hypothesis proposed here. Furthermore, if it is agreed that it has some character, this interpretation is probably close to the original intention.

Rhythmically this composition exhibits alternation of binary and ternary rhythms. This is particularly evident in line 5 with the alternation of *qablite-irbute* with values of 5/4 for *qablite* and 2/4 for *irbute* = 7/4 as 2+3+2/4. It is interesting to note that the popular music of the North East Caucasus, original home of the Hurrians, to this day still uses similar rhythmic patterns.

1 In case my hypothesis for the last interval is validated.

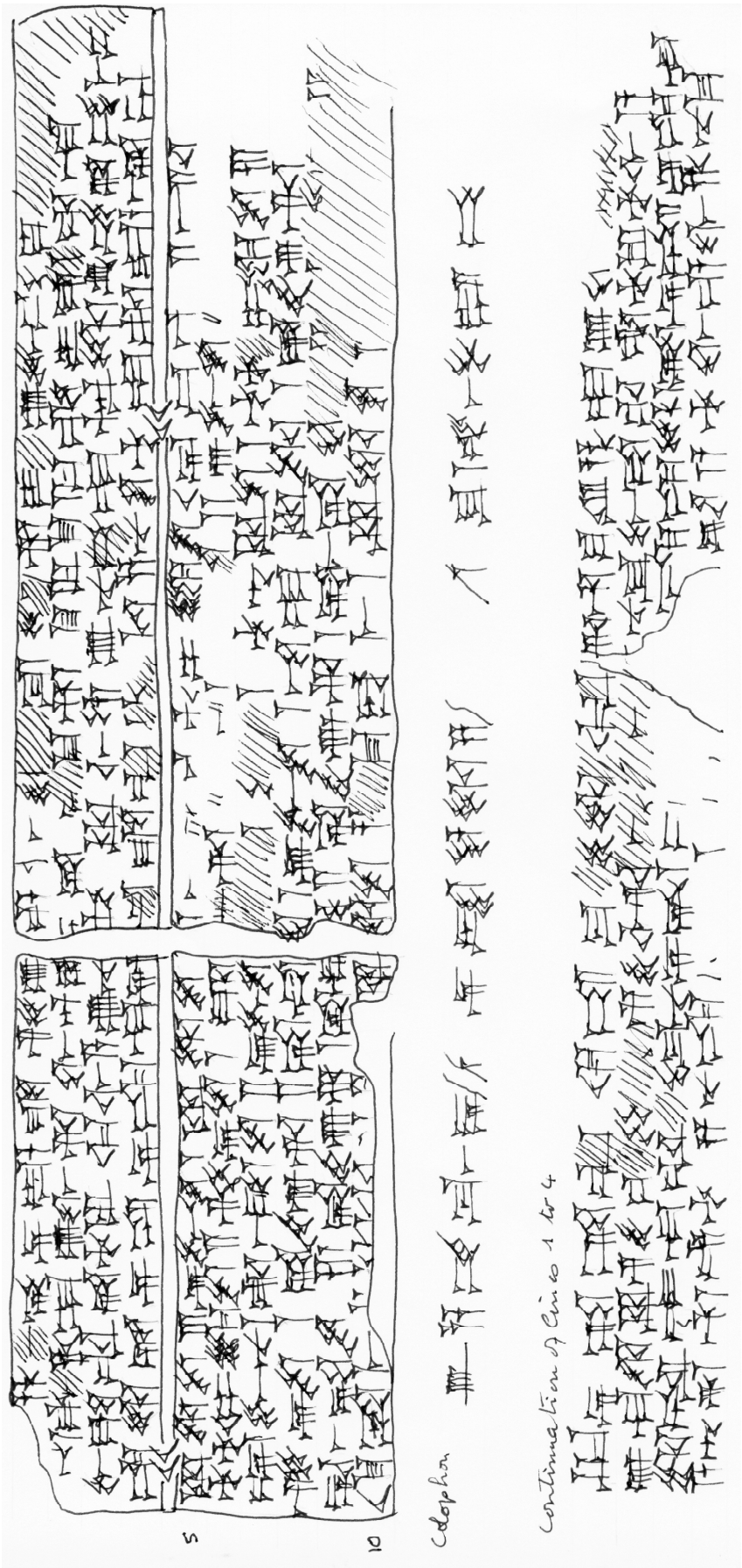


Plate 6, copy of H6, obverse and reverse.

H2

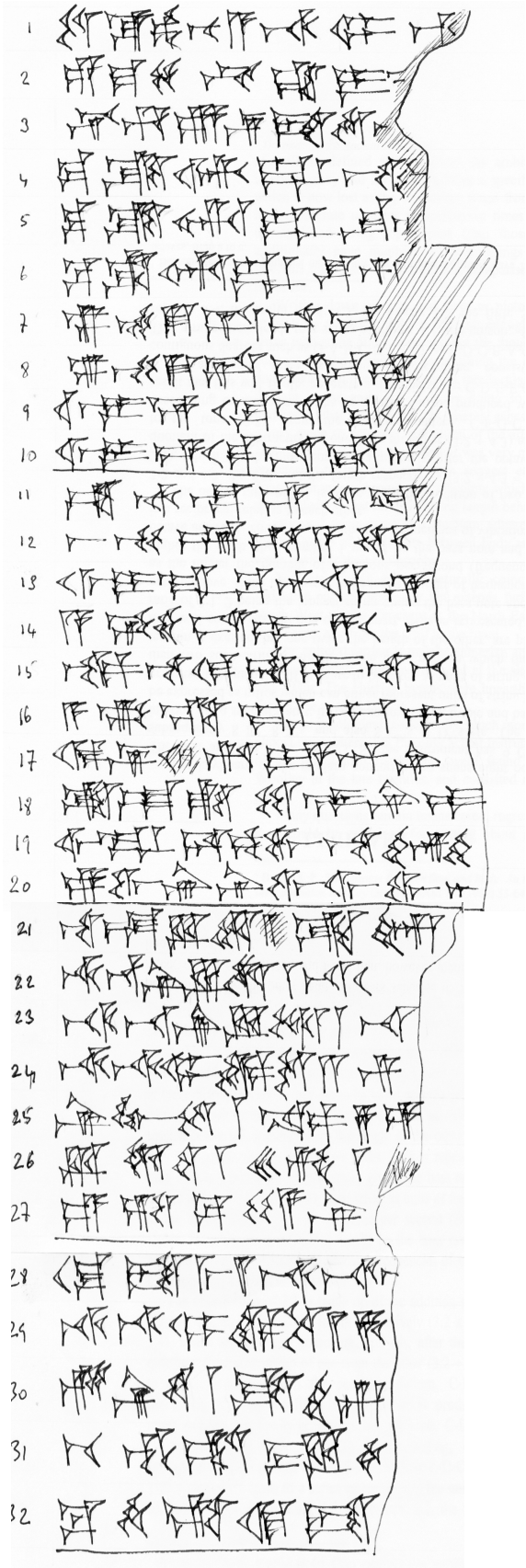


Plate 7, copy of H2.

Transliteration of H2

1. *te-zu-ub-be a-ti-mi ti-[*
2. *e-ku-še pí-ša-i-i[š*
3. *uš-ḫu-un-ni-te-x[ṣ*
4. *ma-ša-ar-ra na-aḫ-[*
5. *ma-ša-ar-ra na-aḫ-[*
6. *ma-ša-ar-ra šu-uš-x[*
7. *ú-mu-lu-uš-du-mal-x[*
8. *ú-mu-lu-uš-du-mal-uš?[-*
9. *ši-i-e ki-iš-ša-an[*
10. *ši-i-e ki-iš-ša-an[*
11. *ta-ti-la-e te-zu-[*
12. *aš-mu-um ta-a-li [*
13. *ši-i-ra-ma-an-di-e-x[*
14. *a-ga-ḫi-iš-hé ḫa-x[*
15. *ka-na-ki-it-ḫé na-ḫu[*
16. *a-ga-ta-ra-ap-ḫé [*
17. *ki-ir-ki-ri-ja-an-ni-x[*
18. *ša-at-ta te-ḫé-er-ḫé [*
19. *ši-ra-du-up-we na-aḫ-ḫi[*
20. *e-we-er-ni we-ši-wa-an[*
21. *na-at-qáb-li 2 ša-aḫ-[ri*
22. *ti-ti-ir-qáb-li 1 ti-[ti-mi-šar-te*
23. *ti-ti-ir-qáb-li 1 ti-[ti-mi-šar-te*
24. *ti-ti-mi-šar-te 2 z[i-ir-te*
25. *ir-bu-te 1 ka-za-e [*
26. *qáb-li-te 1 eš-gi 1[*
27. *e-ta-ma(-?)še-a-ni [*
28. *ki-it-me 2 ti-ti-[mi-šar-te*
29. *ti-ti-mi-šar-te 2 ḫ[a-ap-še-ma*
30. *zi-ir-te 1 ša-aḫ-[ri*
31. *be-en-ta-ma qáb-l[i*
32. *pá-ḫi-ta ki-it-[me*

Figure 7, H2, transcription of lyrics and music.

The lyrics reveal little. The first line contains the name of a God in the genitive *te-zu-ub-be* = *Tešub-be*, 'of *Teššub*' the Hurrian god to whom the hymn was devoted. The names of two Hurrian mountains follow at line 2, *e-ku-še pi-ša-i-i[š*[1]; lines 9 and 10 mention the word 'river': *ši-i-e*; followed by *e-we-er-ni*, 'lord', perhaps an epithet of the god *Teššub.*

1 KUB, XXVII, 14, III, 9, has $^{ḫur.sag}$*Ekušši*. The plural is *Ekuššiina-(šuš)*, in KUB, XXVII, 46, IV, 26; KUB XXXII, 24, II, 9; ABoT, 37, I, 16, 17, 30; II, 31, 32. The word pi-ša-i-i[š- ,($^{ḫur.sag}$*Pišaiša*) which derives from *Pišaiš* designates a type of wood (von Brandenstein, ZDMG, 91, p. 563, n. 1).

Regarding the music, reconstructed here are the second terms at lines 22, 23 and 28, *ti-[ti-mi-šar-te x* since nothing else would do instead and at line 29 *ḫapšema*. However what is most important in this fragmentary text is the appearance of new terminology:

Line 25 *kazae*
Line 27 *etamašeani*
Line 31 *bentamma*
Line 32 *paḫita*

Kazae is obscure. However it is tempting to associate it as an antonym of *ḫizawe.*

Etamašeani is explained by Emmanuel Laroche as the Ugaritic replica of Akkadian ^{d}*Ea*-DÚ, the 'fourth note'[1], as a consequence of phonetic distortions by the Hurrian borrower. *Etamašeani* would thus be the alteration of *Etapuš-a-ni*. The term would indicate some variation about the fourth string. Since the fourth note is of consequential importance to the nature of the scale, it is highly probable that this qualifier indicates an accidental and temporary 'tritonisation' or 'de-tritonisation' of the interval in question.

Bentama or *pentama* is possibly the result of phonetic distortion from the Akkadian *pītu*[2] , 'opening', on the grounds of other cases of nasalisation in front of a dental. Example of such as in Akkadian *išpati*, becoming Hurrian *išpanti*, 'quiver', and Akkadian *Puratta*, turning into Hurrian *Puranti*, the Euphrates river. It is the penultimate interval mentioned in the CBS 10996 text.

If this term is the Hurrianisation of Akkadian *pītu* then it explains why it only occurs 4 times in the series. In the scale of *nidqibli*, which seems to be the only one used throughout the series, this interval would be avoided because it is tritonic thus dissonant. However, this interval could have been used in specific circumstances for temporary modulation.

1 See BOOK II; Laroche, E., AS XVI, 264, n. 28; 168, n.17.
2 See Lexicon, *q.v.*.

Paḫita, (pağ(e)=i=da), '(towards the) head[1] , in the singular allative[2] or directive case, would modify the interval. It qualifies the manner in which it must be played: toward the 'head' of the instrument. It was customary for the more ancient Ur Lyres to be adorned with a bull's, cow's or stag's head as the acrocratic representation of the whole animal. The 14 intervals which constitute the elements of musical notation are given, as we have seen in BOOK II, with a specific direction either ascending or descending depending on the type of interval and on the type of instrument on which the interval is to be played or on the span of the instrument. Thus there was a need for a term to indicate the nature of the interval. However, it is paradoxical to note that in our present text, this *kitme*, which is already descending, does not need such a qualifier. However, most of the text is missing and it is probable that an antonym would previously have ordered a change in the playing of the interval which could be reverted with the term *paḫita*. However, two other terms that we shall see later, *ašḫuwe*, 'high' and *turie/durie,* 'low', might also be confused with *paḫita* in that they may refer to such inversions or octavial positions, in that they would either indicate the interval should be read from the highest or lowest the transliterations that follow.

In its original state H2 being approximately twice the length of H6 would probably have been the longest musical text of the collection assuming that the tempo had been the same in both. However this cannot be ascertained. This text is of great importance as it shows a clean edge on the left of the tablet thus allowing the establishment of some rules of composition, as is also the case with H6, 7 and 10, for the beginning of the lines can be compared. In all three cases the pieces start with a descending anacrusic fifth which is immediately followed by an ascending third. In H6 and 7, the pieces start by *qablite-irbute*. With H2 and 10 we have *nidqibli-šaḫri*.

1 Laroche, E., *Etudes hourrittes,* Revue d'Assyriologie 67 (1973) 119-122.

2 The Hurrian language has 12 cases: absolute, ergative, genitive, dative, allative (or directive), omitative, locative-instrumental, ablative, e-case, instrumental, and equative. See Speisser, E.A., *Introduction to Hurrian*, (AASOR 20), (New-Haven 1941); Bush, F.W., *A Grammar of the Hurrian Language*, Dissertation Brandeis University, 1964; Diakonoff, I.M., *Hurrisch und Ugaritisch* (Münchener Studien zur Sprachwissenschaft, Beiheft 6 N.F.) (München 1971); Khacûikjan, M. L., *Churritskij i urartskij jazyki*, (Jerevan 1985). See Thureau-Dangin, Vocabulaires de Ras Šamra, SYRIA 1931, tablet VIII, col. iv

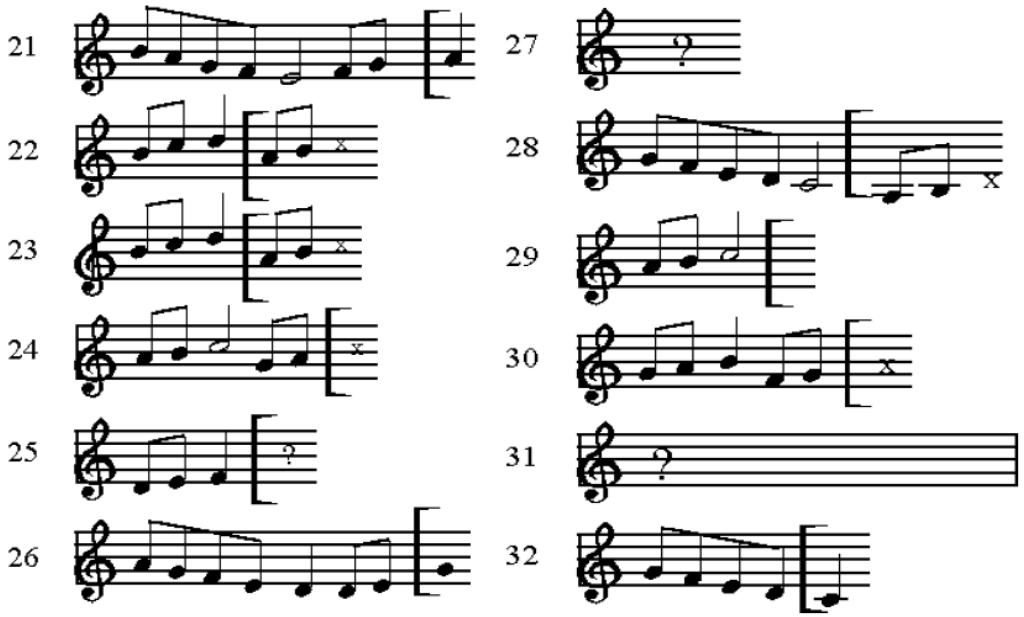


Plate 8, musical interpretation of H2.

H3

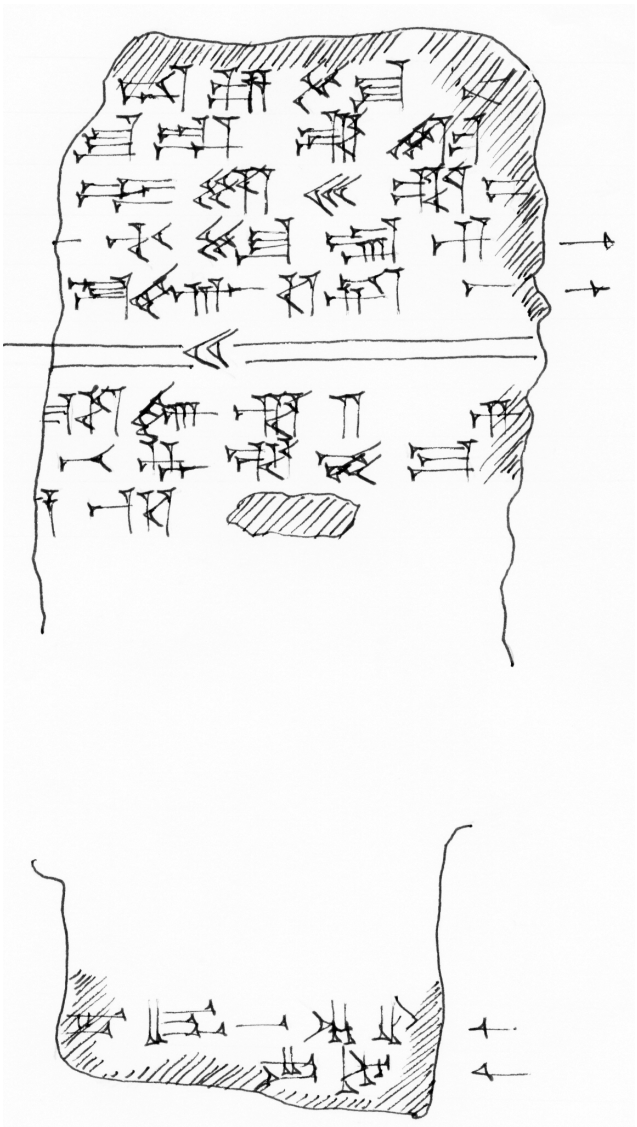


Plate 9, copy of H3.

Reverse *x + 1*	*] x [*
2	*]du-un-tu-ba[*
3	*]šu-ra ša-šar[-te*
4	*]ḫe-le-eš-ta x[*
5	*a]š? ti-tu-um g[i?*
6	*]tu-uḫ-ḫu-uš be[-*
7	*]ša-aḫ-ri 2 z[-i-ir-te*
8	*]be-en-ta-am-ma[*
9	*]ša-a]ḫ-ri x*
Obverse *x + 1*	*-]ḫu-uš[*
2	*-]zu-ḫa-aš zu-u[š-*

Figure 8, transliteration of H3.

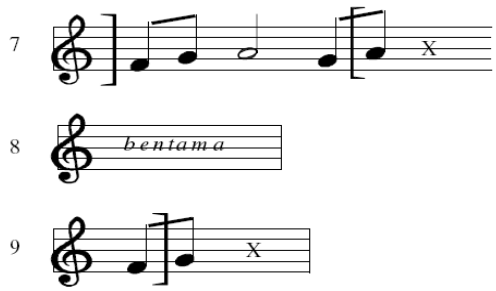


Plate 10, musical interpretation of H3.

The term *bentama* in line 8 may be the Hurrian equivalent of Akkadian *pītum*. Line 7 has *šaḫri* followed by *zirte*. These two intervals span a tritone, f-b. This would be echoed with *pītum* which is the descending tritonic pentachord, f-e-d-c-b, if the scale of the piece is *nidqibli*.

H4 (R.Š. 14.15)

Plate 11, copy of H4.

Reverse *x* + 1	*[ša-aḫ-ri tu[-ri-e*
2	*ḫiza-]wa-ša ḫa-ap-še-ma aʔ-x [*
3	*]5ʔ na-at-qáb-li 5 ḫi-za-w[a-ša*
4	*]ḫe-le-eš-ta x[*
5	*aš]ʔ ti-tu-um g[iʔ*
6	*]tu-uḫ-ḫu-uš be[-*
4	*]1ʔ ša-aḫ-ri tu-ti-e 1 x [*
5	*]x ti-ti-i-šar-te 1 z[i-ir-te*
6	*]x ša-aḫ-ri tu-ri-i-e[*
7	*š]a-aḫ-r[i-*
Reverse? x + 1	*be-en-ta-am]-ma x-[*
2	*]gi-eš-ša 2 x - x [*
3	*gi-]eš-ša x [*

Figure 9, transliteration of H4.

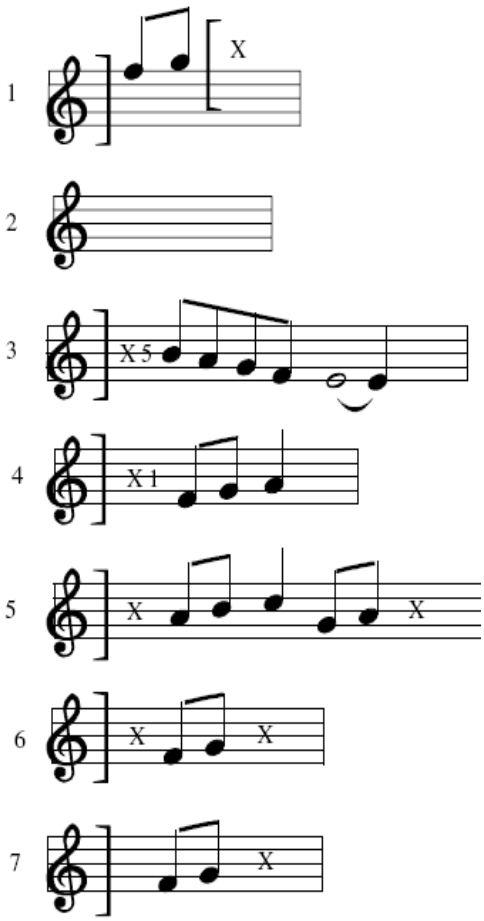


Plate 12, musical interpretation of H4.

H5 (R.Š. 14.18)

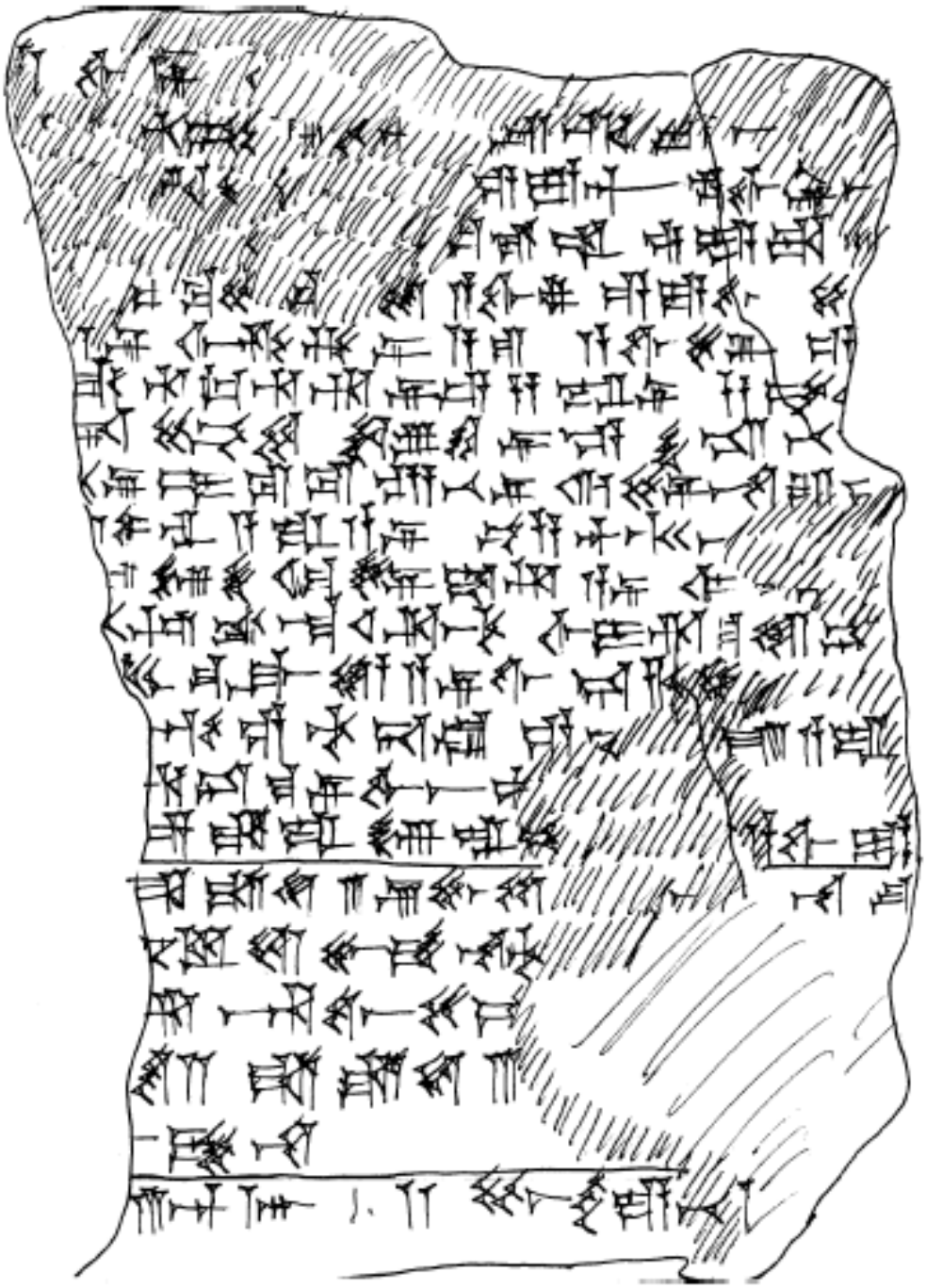


Plate 13, copy of H5.

1 Obv.		*]x wa-ʔir-x[*
2	*]x-x ti-x-x-wa-x[*	*]ib-ri-ja-aš*
3	*]riʔ-mu-w[a*	*]e-ja-an-e-we-er-n[iʔ*
4		*]x-x-(o)-x ma-da-al e-ja-da-an[*
5	*]x-ma-še x-te a-we-en e-ja-wa t[eʔ-*	
6	*]a-ni ši-ig-gi-ni a-lu a-wi-in e[-*	
7	*-]da ḫu-ur-ḫu-ri ni-e za-ra-ni za-am m[iʔ*	
8	*]uš še-pi-te ḫe-el-li ni-e ḫi-iš-na[*	
9	*]x-ir-ḫe zu-zu-un-nu-uš di-in-na-jaʔmaʔ[*	
10	*]x-we-en a-ra a-ni pi-sa-an-ti-x[*	
11	*z]e-eḫ-ḫi ki-in-na-ri a-ni ši-i-r[i*	
12	*-t]iʔ-ib ša-la-ar-ti ši-ir-ri ku-li-du[*	
Rev. 13	*]x-še ḫe-el-li ku-un-da-ri diʔ-ru-uš e-x[*	
14	*]x-šu-gal-li a-ni-wa tu-ḫa-še*	*[*
15	*]x-ti-e ti-du-un e-ḫu-[u]š*	*sa-a-ra x[*
16	*]ḫu-du ku-ni-wa-aš pa-x[*	*]*
17	*-]e ša-ra aḫ-ra-am-[*	*]aʔ-wa-ja[*
18	*]ša-ša-te 3 ir-bu-te[ ]we-x[ ]x na-at[-qáb-liʔ*	
19	*ti]-tar-qáb-li pu-gar-na ti-x[*	
20	*ša-aḫ-]ri as-ḫu-wa pu-gar-[na*	
21	*ir-bu]-te 2 ša-ša-te 3 x[*	
22	*p]u-gar-na*	
23	*]3ʔ* DINGIR^{mes} x-x-*pu-ḫi-ja naʔ[*	

Figure 10, transcription of H5.

The text mentions the Hurrian for 'lord', 'rejoice', 'home of the gods', some of the ingredients for temple hymnology. Two words, one in line 7, *za-am-mi*, and another in line 11, *ki-in-na-ri*, bear homophony with zà.mí/*sammû*: the harp[1] for the first and Palmyrene *kinora*, the Hebrew *kinnor*[2] but also Nabatean *kinnara*. The Arabian *kiran*, could be the metathesis of the Syriac and Hebrew sources.

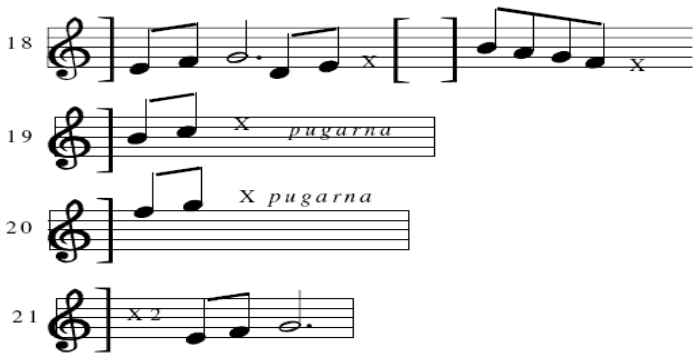


Plate 14, musical interpretation of H5.

1 Lawergren, B., and Gurney, O.R, *Sound Holes and Geometrical figures*, IRAQ XLIX (1987) 40-43.
2 *Zeitschrift d. Deutschen Morgenländischen Gesselschaft*, xviii, 105; Corpus Inscriptionum Semiticarum, ii, No 268; Jaussen and Lavignac, *Mission archéologique en Arabie*, 217.

H7 (R.Š. 19.155)

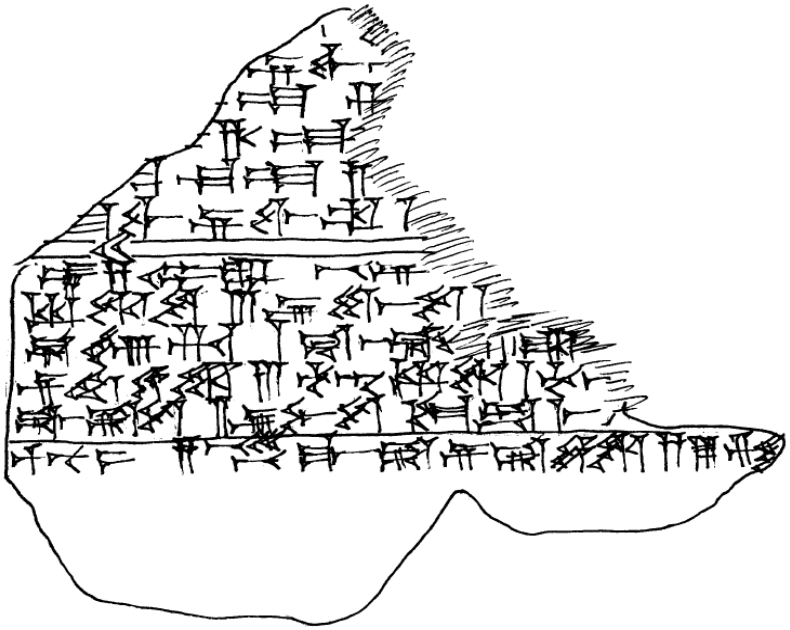


Plate 15, copy of H7.

1	Traces	
2		*]-ni-wa-x[*
3		*]x-at z[iʔ-*
4		*-]nu-ḫat-at [*
5		*-a]l-la-at ḫ[aʔ-*
6		*x-wa-ni-wa-al aʔ[-*
7		*az-za-mi-ra be-ni-[*
8		*qáb-li-te 3 ir-bu-te 1 [*
9		*ša-aḫ-ri 1 ša-aš-ša-t[e] 2ʔ ša-[aḫ-ri*
10		*ni-[i]t-kib-li 4 ti-tár-qab-li 1 ti-t[i-mi-šar-te*
11		*ša-aš-ša-te 2 ir-bu-te 3 ki-it-me 1 [*
12		*[a]n-nu-u za-am-ma-rum sa ni-it-kib-li za-lu-zi [*

Figure 11, transliteration of H7.

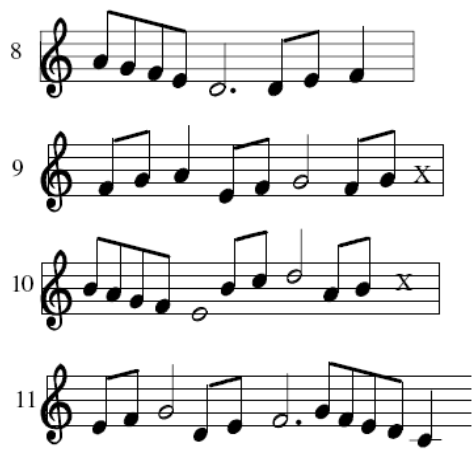


Plate 16, musical interpretation of H7.

H6 and H7 are quite similar: in H6, line 6, terms 1 and 2 are the same as H7; line 8, terms 1 and 2; H7, line 9, terms 1, 2 and 3 are seen in H6 at line 9, terms 2, 3 and 4, but could also be present in H6, line 6, terms 3, 4 and 5, if my interpretation of the reading of term 5 is erroneous; H7, line 10, terms 1, 2 and 3 are seen in H6, line 7, terms 4, 5 and 6; H7, line 11, terms 1, 2 and 3 are seen in H6, lines 9, terms 5 and 6 and line 10, term 1.

The music in H7 is written on 4 lines instead of 6 in H6 although it is possible to assume that only minor variations distinguished one from the other. The little text in H7 indicates that the lyrics differed and that H7 was thus not a straightforward copy of H6.

H8 (R.Š. 19.84)

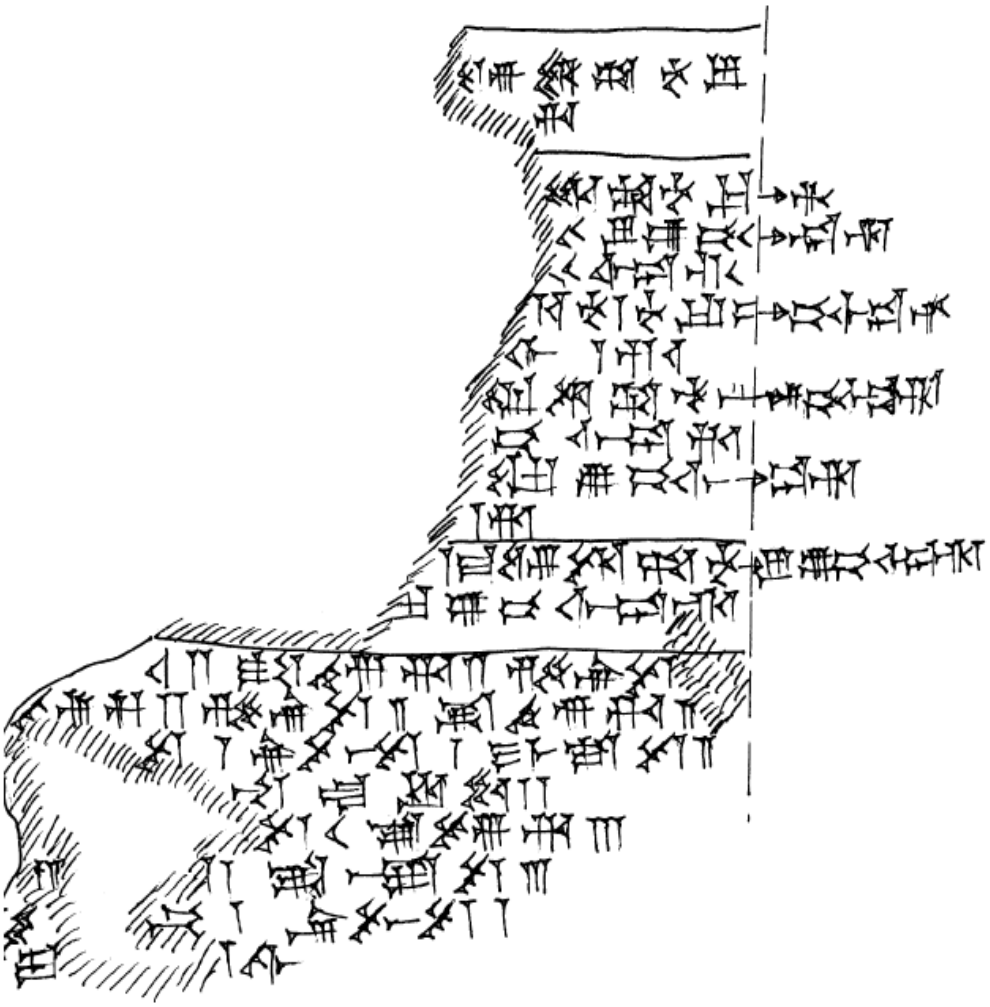
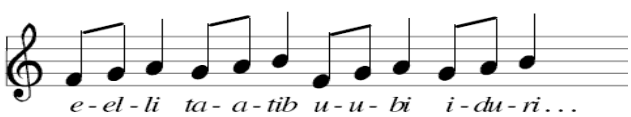


Plate 17, copy of H8.

1	Obv.	*]el-li ta-ti-ib [ú-bi ši-du-ri]*
2		*ši-du-]ri*
3		*el-]li ta-ti-ib [ú-bi ši-du-]ri*
4		*ta-t]i-ib ú-bi š[i]-du-ri*
5		*ú-bi ši-du-ri*
6		*el-]li [t]a-ti-ib ú-bi ši-du-ri*
7		*] ši-du-ri*
8		*el-]li ta-ti-i[b] ú-bi ši-du-ri*
9		*ú-]bi ši-du-ri*
10		*ta-t]i-ib ú-bi ši-du-ri*
11		*ši-d]u-ri*
12		*]x-ma el-li ta-ti-ib ú-bi si-du-ri*
13		*ta-ti-i]b ú-bi ši-du-ri*
14	Rev.	*-t]e? 2 ša-aḫ-ri 2 zi-ir-te [x]*
15		*ša]-aḫ-ri 2 zi-ir-te 2 ša-aḫ-ri 2?*
16		*zi-ir-]te 1 ir-bu-te 1 ša-aš-ša-te 2*
17		*]na-at-qáb-li 1*
18		*zi-i]r-te 10 ša-aḫ-ri 3*
19		*] 4 [ ]2 ? ša-aš-ša-te 3*
20		*] x-x [-]bi 1 ir-bu-te 1*
21		TA ^{m}*U]r-ḫi-ya* [SU X-]X-*wa*

Figure 12, transliteration of H8.

This text and H6 have line ends for both lyrics and music. We have 13 lines of text for 7 of music. There is insistence in the repetition of the group of intervals *šaḫri/zirte* and this seems to agree with the repetitiveness of the sequence : *elli tatib ubi šiduri* which Professor Gernot Wilhelm, in a verbal communication at Cambridge in March 1995, rendered as 'this silly girl *(šiduri)*[1] loved'. There is a temptation subjectively to vocalise the expression *elli tatib ubi šiduri* in respect of the alternation of the intervals *šaḫri/zirte* as:



The span of the tritone between the first note of *šaḫri*, and the last of *zirte*, agrees with the context.

1 *šiduri*, the 'ale-wife' encountered by *Gilgameš* in the course of his journey, is a Hurrian term for 'young woman' used to describe *Hebat*, a form of *Ištar* in the Hurrian texts; cf. e.g. *KUB*, xxvii, 38, iv, 8; 42; obv. 23. Note also the Hurrian fragment of the epic, *KUB* viii, 61 (line 4), thus confirming Jensen's old suggestion that *Siduri* and *Šiduri* should be equated.

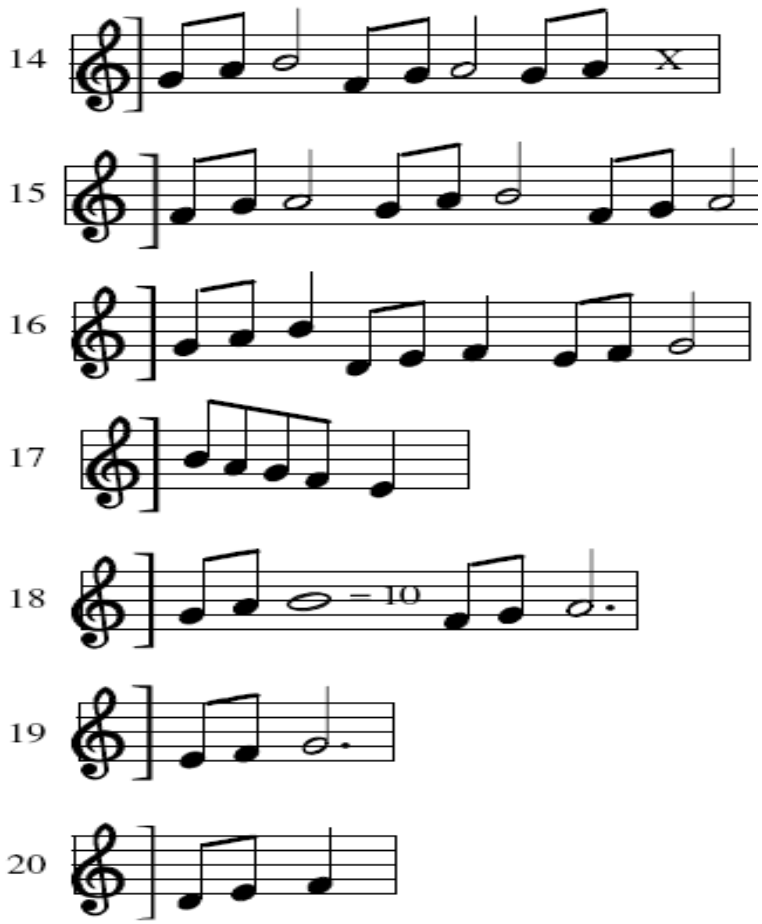


Plate 18, musical interpretation of H8.

H9 (R.Š. 19.146)

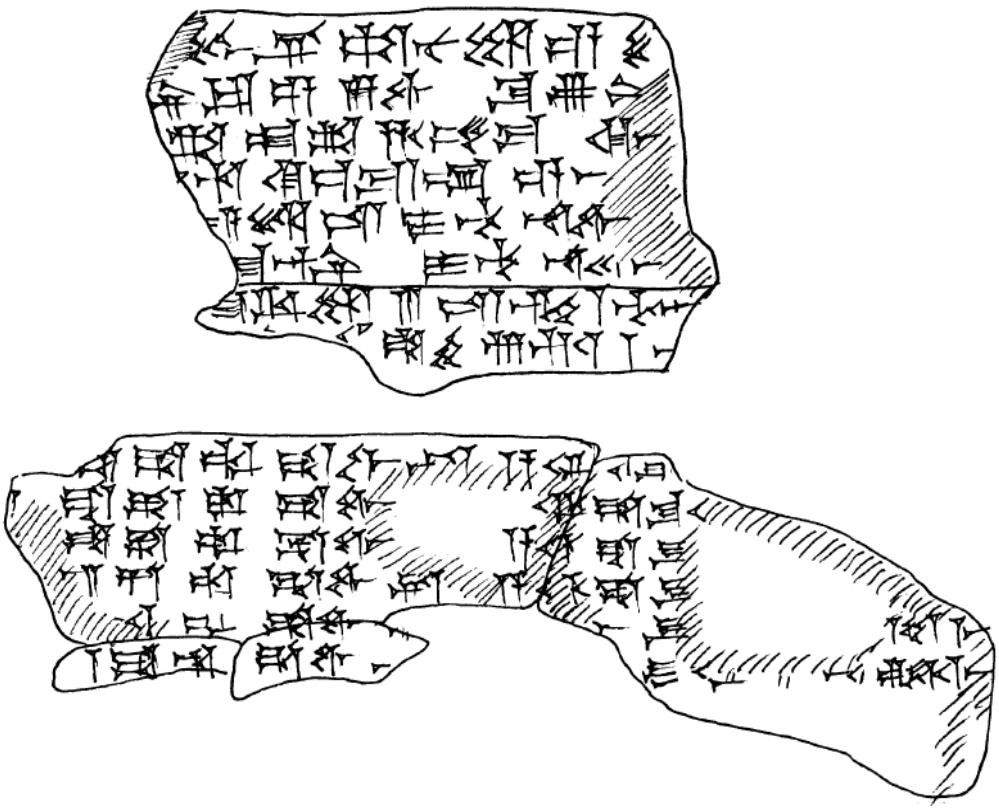


Plate 19, copy of H9.

1	Obv.	(a)	*-]pu-uš ša-nu-le-e ḫi-x[*
		(b)	*]x ša-ša-al ša-wu-uš a-ru-ša su-[ru-un?-na*
2		(a)	*-]ni-ib e-lu-wa šu-ú-n[i?*
		(b)	*]x ša-ša-al ša-wu-[uš a]-ru-ša šu-[ru-un?-na*
3		(a)	*]ta-at-ta ḫa-am-ba ki-x [*
		(b)	*]ša-ša-al ša-wu-[uš] a-ru-ša š[u-ru-un?-na*
4		(a)	*]x-ri ki-iz-zu-um e-x*
		(b)	*š[a-ša-al ša-wu-uš a-ru-ša su[-ru-un?-na*
5		(a)	*]e-li-iš i-ti na-wa-[*
		(b)	*ša]-ša-al ša-wu-[uš a-ru-š]a šu-[ru-un?-na]-e-li x[*
6		(a)	*]x-la-an-ni i-ti na-wa-x[*
		(b)	*š]a-ša-al ša-wu-[uš a-ru-ša] šu-[ru-un?-na e-li-x[*
7			*na-a]t-qáb-li 3 iš-gi 1 ti-tá[r-qab-li*
8			*] x x ša-aḫ-ri 1 x [*

Figure 13, transliteration of H9.

The lyrics show much repetition as was the case in H8. We have recurrences of the ending words *šašal; šawuš; aruša*, etc. with varied beginnings:

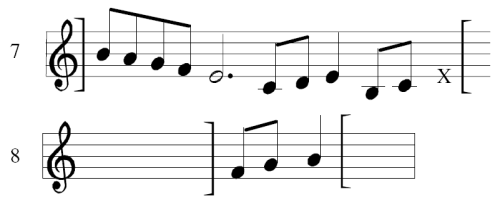


Plate 20, musical interpretation of H9.

H10 (R.Š. 19.148)

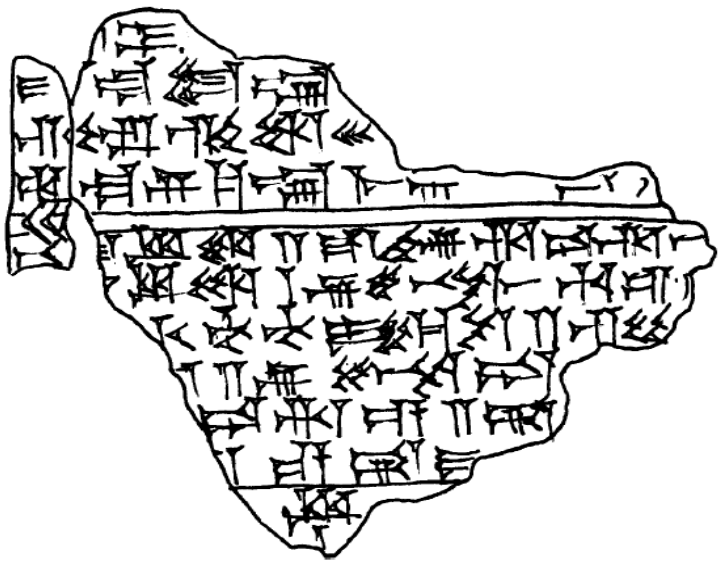


Plate 21, copy of H10.

1	Obv.	*] x-at [*
2		*š[a]-at-tu-um [*
3		*ge-el-ge-le-eš[*
4		*al-la-ni ku-um-me-ni-wa e-x[*
5		*n[a-a]t qáb-li 2 ša-aḫ-ri du-ri-[e*
6		*[na-at]-qáb-li 1 ir-bu-te aš-ḫu-e 1? [*
7		*]x 10 ti-ti-i-šar-te 2 zi-[ir-te?*
8		*qáb-li-]te 2 ir-bu-te du-[ri-e*
9		*]2 e-ta-m[a-še-a-ni*
11		*ti-ta]r-qáb-l[i*
12		Traces.

Figure 14, transliteration of H10.

The lyrics mention 'the lady of Kummi' as *allani kummeniwe* = *alla-ni kumme-ni-we*, goddess *Hebat*, *Teššob's* wife. The music yields the qualifiers *durie*, and *ašḫue*.

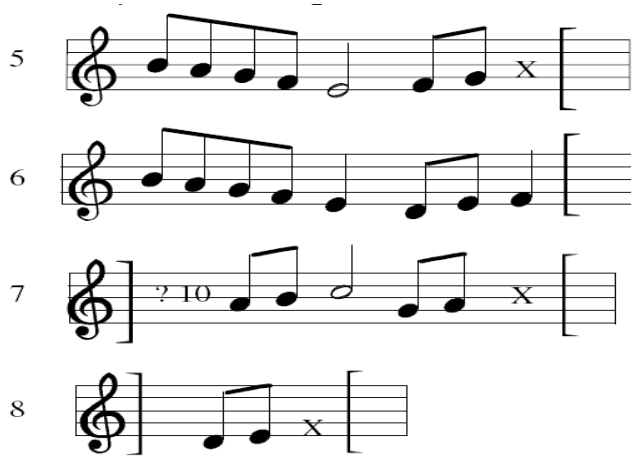


Plate 22, musical interpretation of H10.

H11 (R.Š. 19.150)

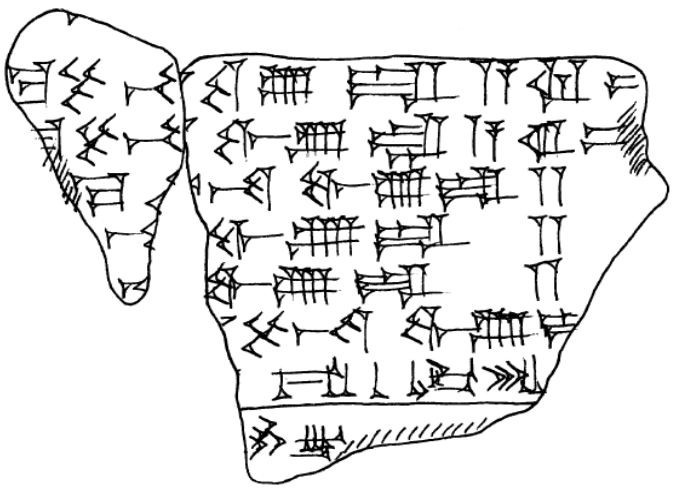


Plate 23, copy of H11.

1	Rev.	Traces
2		*-]ba-še-na wu-ú-ra a-ru-u-[š?*
3		*-]ba-še-na wu-ú-ra a-ru-u-[š?*
4		*]x-ba-še-na wu-ú-ra* MIN
5		*-ba-še-na wu-ú-ra* MIN
6		*-n]a [wu-ú-ra* MIN
7		*-ba]-še-na wu-ú-r[a* MIN]
8		*]ir-b[u-te*
9		DIN]GIR^{meš}TA ^{m}*Ur-[ḫi-ya*

Figure 15, transliteration of H11.

In the lyrics the repetition of the verb (?) *aruš-?* is shown with MIN which means *idem*.

H12 (R.Š. 19.147)

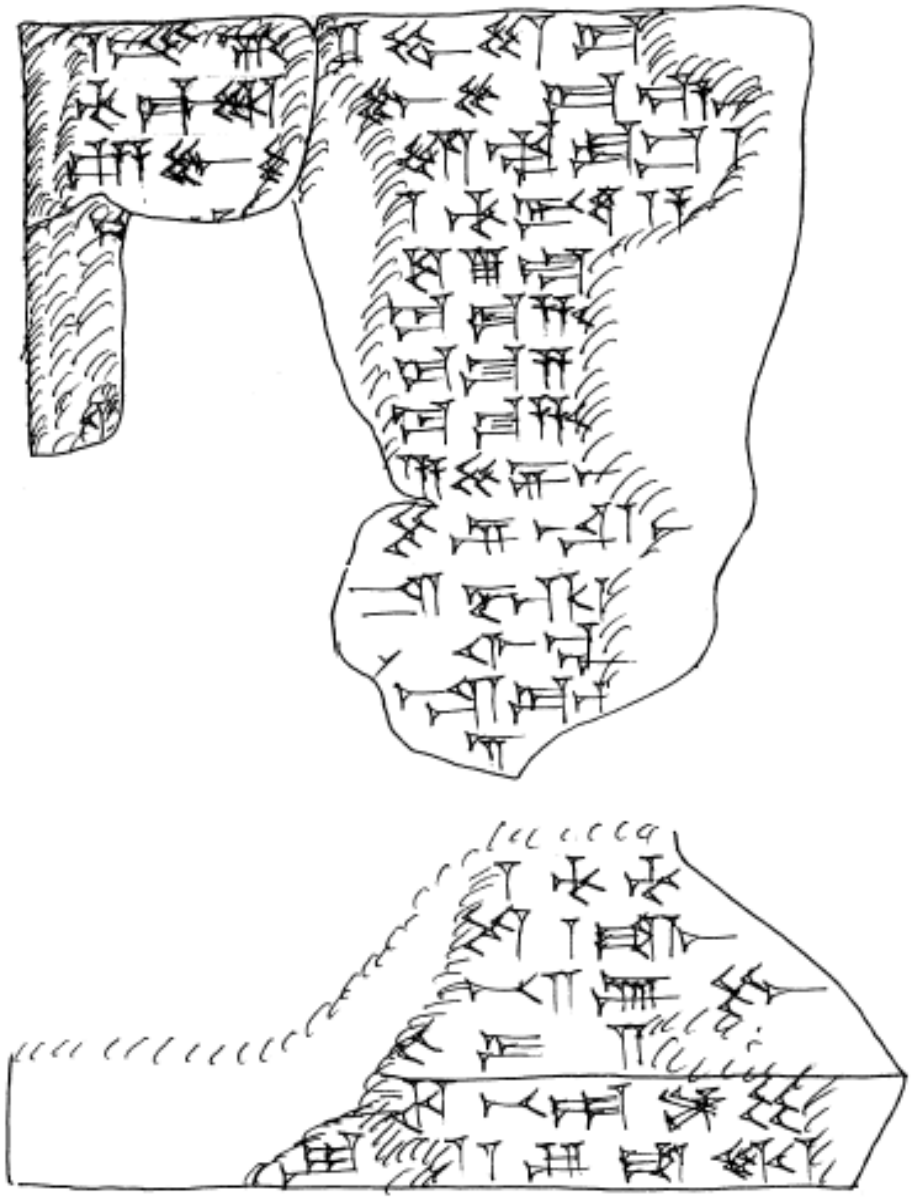


Plate 24, copy of H12.

1 Obv. *-n]aʔ-am-ta [i]pʔ-pu-li-ma*
2 *[x]-ti-gal-li [x]-pu-l[i]-ma e-x[*
3 *[x]-un-bu x-[x]-li al-la-šu ʔ-x*
4 *[x]-up-x[ ]x-ti-it a-[*
5 *[x]-x[-t]a-lu-la [*
6 *]ba-šu-ḫa[*
7 *]ba-šu-ḫa x[*
8 *-u]n ʔ-še-ni x [*
9 *-]še-ni ka-x [*
10 *-]iš-ba-ri-[*
11 *-n]i ši-ta[-ar-ni ??*
12 *] iš-ba-r[i-*
13 *]ni[*
1 Rev. *]1 ʔ ti-ti[-mi-šar-te*
2 *ir-bu-]te 1 ša-aš-[ša-te*
3 *em-b]u-be 2 ir-bu[-te*
4 *ḫa-ap]-še-ma 2 x [*
5 *[an-nu-u za-am-ma-rum sa na-at-kib-l[i za-lu-zi]*
6 *[sa* DINGIR^{meš} TA ^{m}*x-x-]ya* [S]U^{m}*Ip-ša-li [ ]*

The colophon confirms the usage of the scale of *nidqibli*.
Figure 16, transilteration of H12.

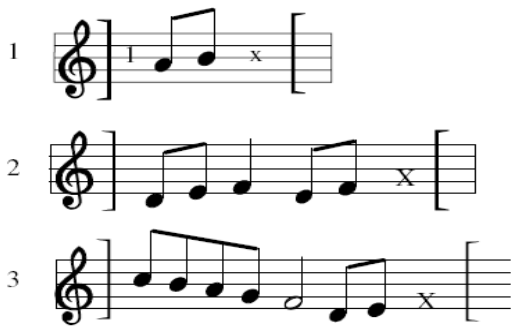


Plate 25, musical interpretation of H12.

H13 (R.Š. 19.164d)

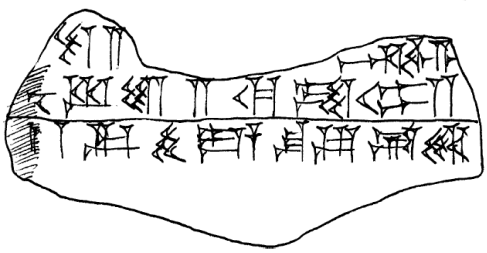


Plate 26, copy of H13.

1 Rev. *zi-ir]-te 2 [ša-aḫ-r]iʔ aš-ḫu-wa 2 x[*
2 *ti-t]ar-qab-li 2 ki-it-mi 2*
3 T]A ^{m}*Ur-ḫi-ya* ŠU *Ip-ša-li*

Figure 17, transilteration of H13.

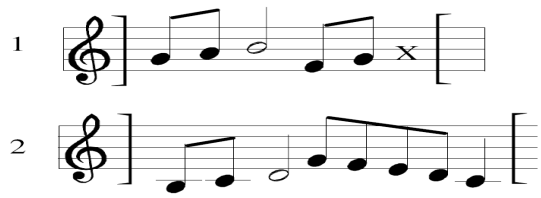


Plate 27, musical interpretation of H13.

H14 (R.Š. 19.156)

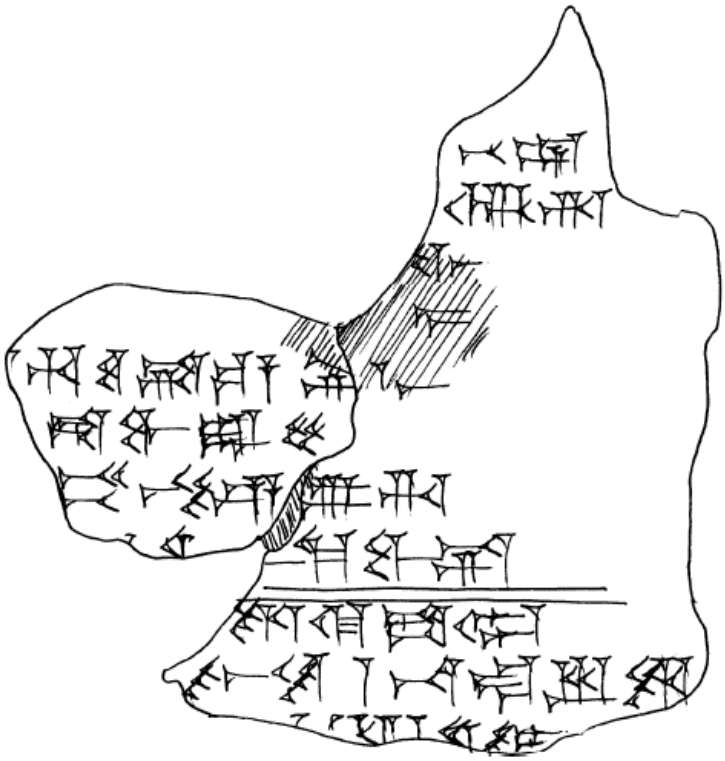


Plate 28, copy of H14.

1	Obv.	*-]nu-um*
2		*-]ar-ri*
3		*-]wa*
4		*] x ba x [ ]-ni*
5		*]x ḫu-ut-ta (-?) e-ni-x-x*
6		*]ša-wa-ra-še*
7		*] am-mu-un u-ri*
8		*] x-x ka-wu-uš*
9		*ti-tar-qáb]-li 1 ki-it-mi 1*
10		*ir-b]u-te 1 na-at-qáb-li [*
11		*] x - x* TA *Pu-ḫ-y[a*

Figure 18, transliteration of H14.

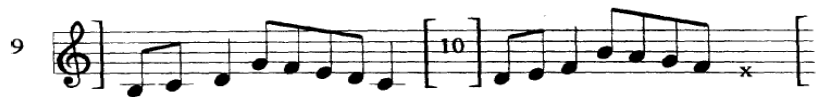


Plate 29, musical transcription of H14.

H15 (R.Š. 19.143)

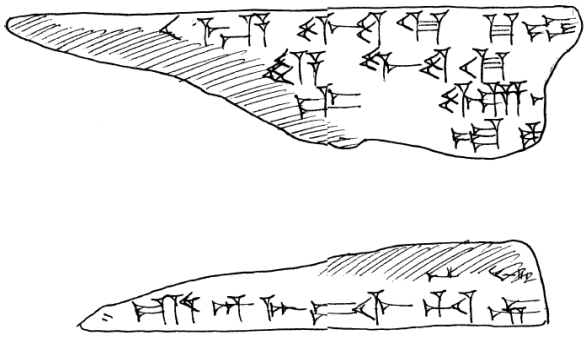


Plate 30, copy of H15.

1	Obv.	*]x-a-ya wu-ut-ki ku-um[-*
2		*]ḫi-a wu-ut-ki [*
3		*]-ub wu-un-x[*
4		*]x at-t[a-?*
1	Rev.	*š]a-aḫ-[ri*
2		*za-lu-z]i* ŠA DINGR^{meš} *Tap-ši-ḫu-ni[*

Figure 19, transliteration of of H15.

H16 (R.Š. 19.164a)

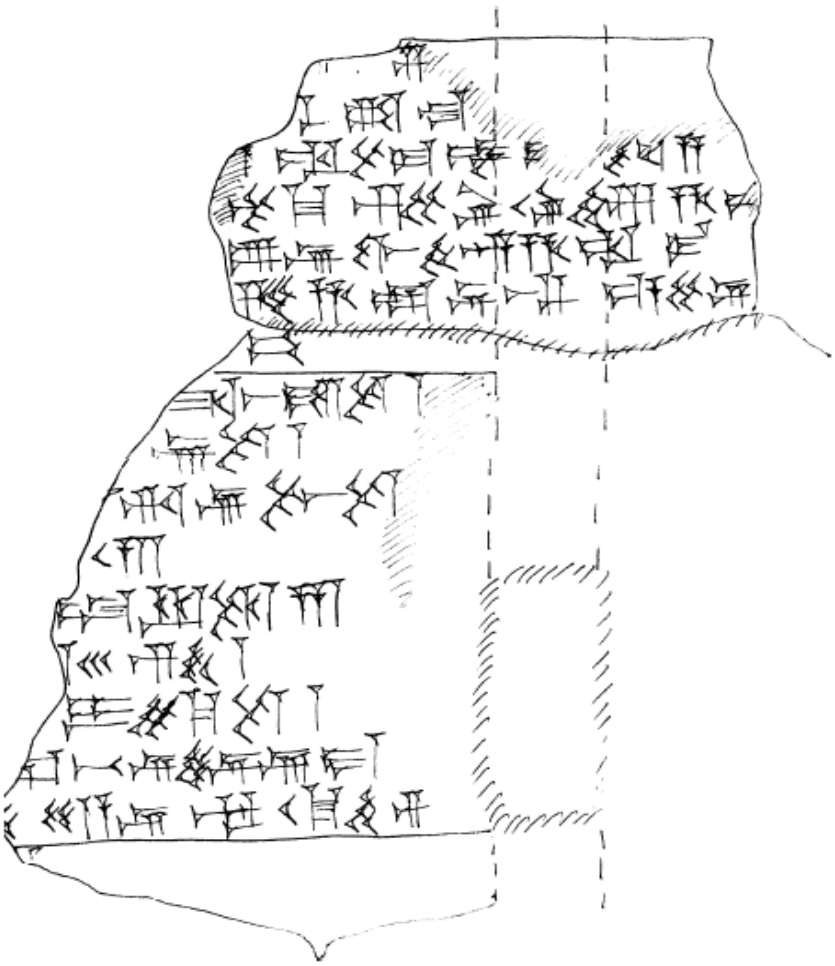


Plate 31, copy of H16.

1	Obv.	Traces
2		*-e]n ta-la-[*
3		*]x-al-tu-uk-k[u]na-za-[*
4		*-]mu-ku zi-ir-ru-uḫ-ḫa-a[1?*
5		*-]u ir-wa-aḫ-ḫa-al ma-[*
6		*-]gi ḫa-ze-ni-en e-še-ni [*
7		*-]x-na? [ ]a-ru x[*
8		*šḪa-aš-ša-te 1*
9		*z]i-ir-te 1*
10		*uš-ta-ma-]a-ri ir-bu-te x*
11		*]x 4*
12		*na-]at-qáb-li 5*
13		*]1? eš-gi 1*
14		*ti-ti-m]i-šar-te 1*
15	Rev.	*] x be-ni-in-ni-ma*
16		*]x še-a-ni ak-ki-im*
17		*] x*

Figure 20, transliteration of H16.

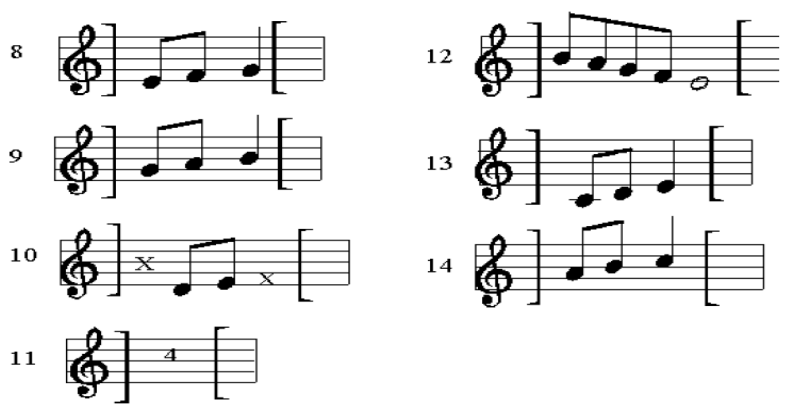


Plate 32, musical interpretation of H16.

H17 (R.Š. 19.157d)

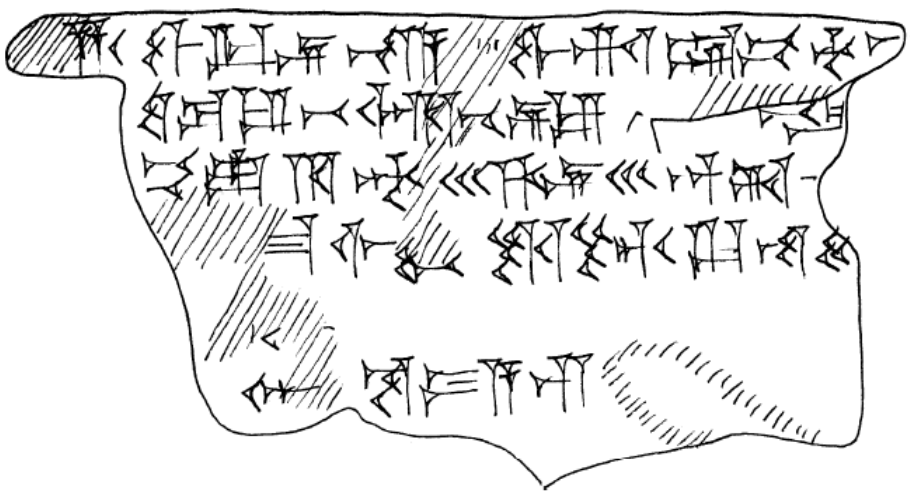


Plate 33, copy of H17.

1 *]-ḫa wu-ur-ni-na a-ú-wa-ri dup-pí-ti x[*
2 *]x-šu-ib-be ar-nu-ni-ib-b[e] ka[-*
3 *b]i-ya-[r]i aš-ti-es ḫa-ni-eš ḫa-ni-eš* AN?*ša-x[*
4 *-m]a? si-e[l]-li še-ḫu-ur-na še-[*
5 *] x [ ]x*
6 *em-b]u-be? [uš-t]a-ma-a-r[i]*

Figure 21, transliteration of H17.

H18 (R.Š. 19.15c)

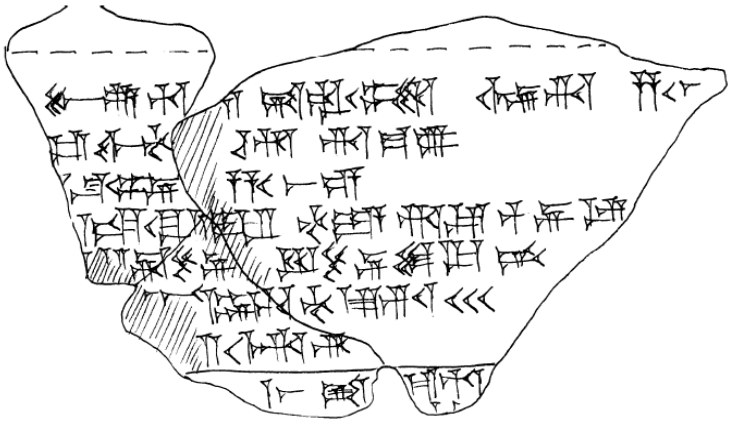


Plate 34, copy of H18.

1 Obv. *]x pu-un-ḫu-[x-]x ta-al-mi-li ši-ir-ri ḫa-x[*
2 *-]ib-wa ti-[x-t]a?-ri tal-ma-u*
3 *]x šu-mi-ni [x-]ḫa-aš-e*
4 *]x-ka-ru a-i-ib ti-ya-ri-ib par-ni-ib [*
5 *]x-ip?-ta-še n[i-x-]kab-še ni-tu-ur-ta [*
6 *]x-x-um hu-ti-lu-re-eš [*
7 *]x ar-re-[e]š*
8 *-w]a? ta[- -]ib ḫu-[*
9 Trace

Figure 22, transliteration of H18.

H19 (R.Š. 19.149)

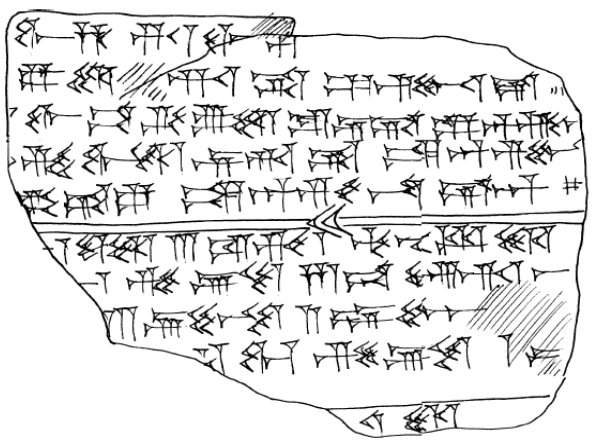


Plate 35, copy of H19.

1 *]we-ḫa-ri-wa k[a]-an-zi n[a]-sa-an*
2 *gi]u-li x-ri ta ka-zi-na-sa-a[n*
3 *]x-wa-ta gi-u-li zu-ni-ta ka-an-zi-n[a-ša-an*
4 *]x gi-wa-li ni-ri-ta ka-an-zi-n[a-ša-an*
5 *]ta-ta-e ka-an-zi-na-ša-an t[a?-*

6 *ni-i[t-kib-li 3 iš-gi 1 ti-tar-qáb-li [*
7 *]x 1 zi-ir-te 5 ša-aḫ-ri aš-[ḫu-wa*
8 *]x 2 ir-bu-te 2 um-bu-b[e] [*
9 *aš-ḫ]u-wa 1 zi-ir-te 1 x[*

10 *]x-li*

Figure 23, transliteration of H19.

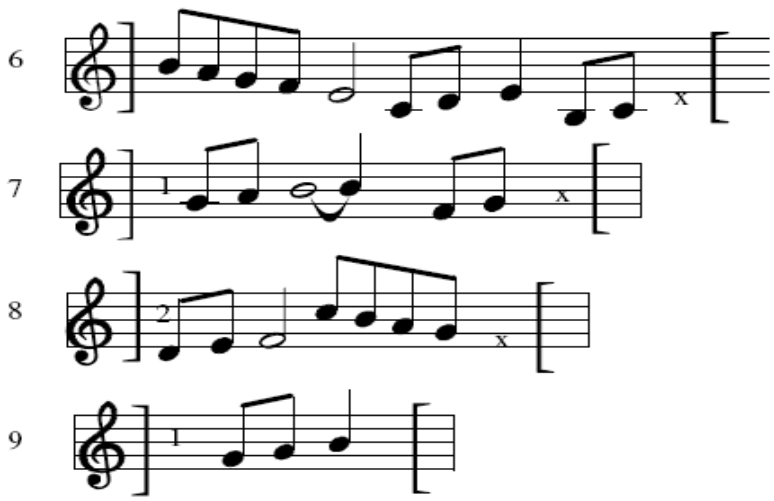


Plate 36, musical interpretation of H19.

H20 (R.Š. 19.142)

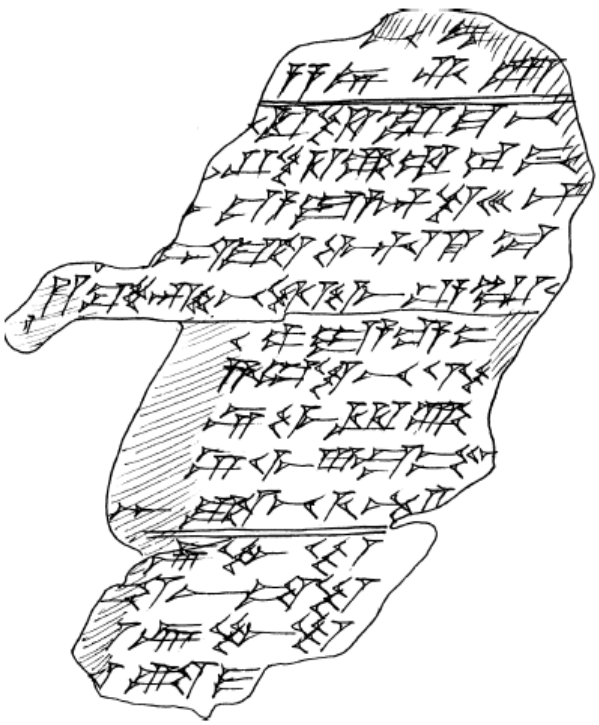


Plate 37, copy of H20.

1	Obv.	*]taʾ-al[*
2		*]-ḫa ni-ri-u [*
3		*]ru-li-ra-ma be-x[*
4		*i]l-li-ša-al ba-sa-[*
5		*]x-e-ya-an te-eš-ḫ[uʾ-*
6	*]x[*	*]-du-ša(-ʾ)wa-ḫu ku-ba-[*
7	Rev.	*]x-kuʾ-ba-bu-gi-be-li-wa e-ra-x[*
8		*]x-pa-ya-e x[*
9		*-]ḫa-ap-te-na šeʾ-*
10		*]ni-wa-ag-ga [*
11		*-]ni ši-lu-la-am-x[*
12		*]x ša-ti-i [1*
13		*]ir-bu-te [*
14		*]ša-aš-ša-te [*
15		*] 1ʾ ir-bu-te [*
16		*e]-ta-[ma-še-a-ni*

Figure 24, transliteration of H20.

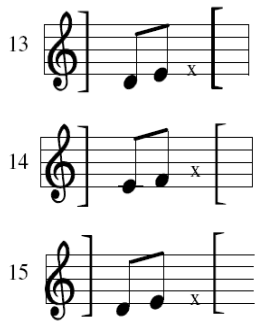


Plate 38, transliteration of H20.

H21 (R.Š. 19.154)

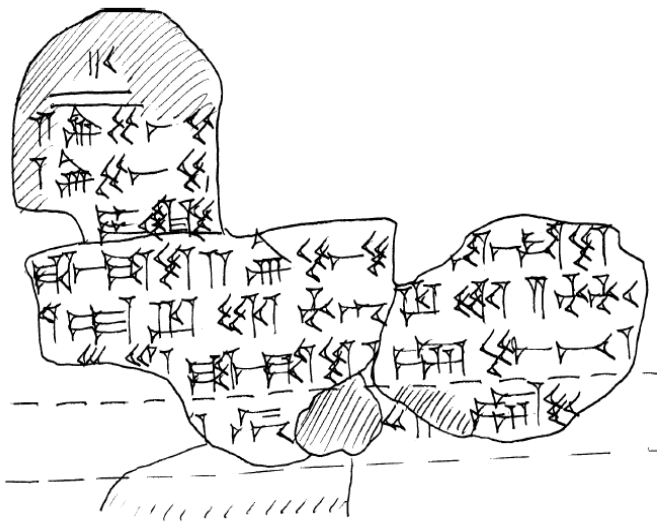


Plate 39, copy of H21.

1	Obv.	*-ḫ]aʔ [*
2		*[2ʔ ir-bu-t[e*
3		*] x 1 ir-bu-te [*
4		*ti-ti]-i-šar-te 1 ša-aš-ša[-te]x[*
5		*]ša-aš-ša-te 2 ir-bu-te [x] ša-aš-ša-te [*
6		*n]a-at-qáb-li ti-tar-qáb-li 2 ti-ti-[i-šar-te*
7		*ir-b]u-te 1 ša-aš-ša-te 1 um-bu-be 1 [*
8		*š]a-aš-ša-te 1 um-bu-be*

Figure 25, transliteration of H21.

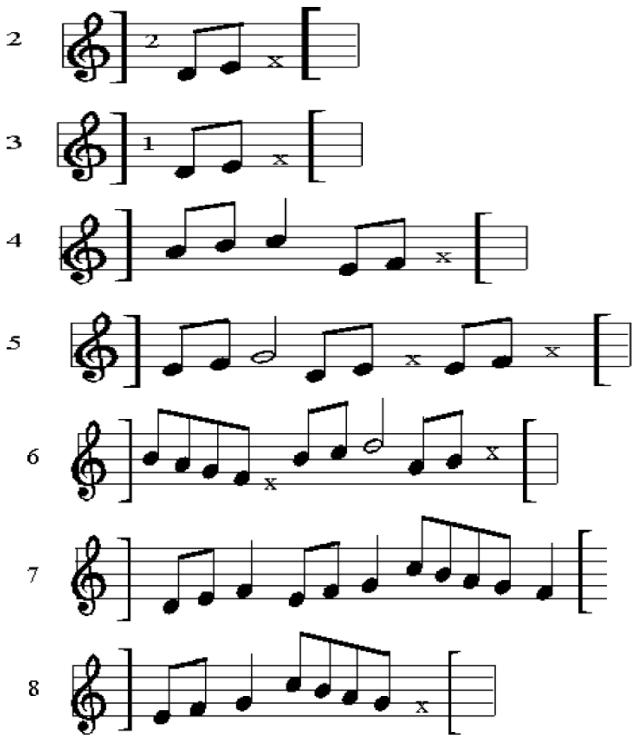


Plate 40, musical interpretation of H21.

H22 (R.Š. 19.164c)

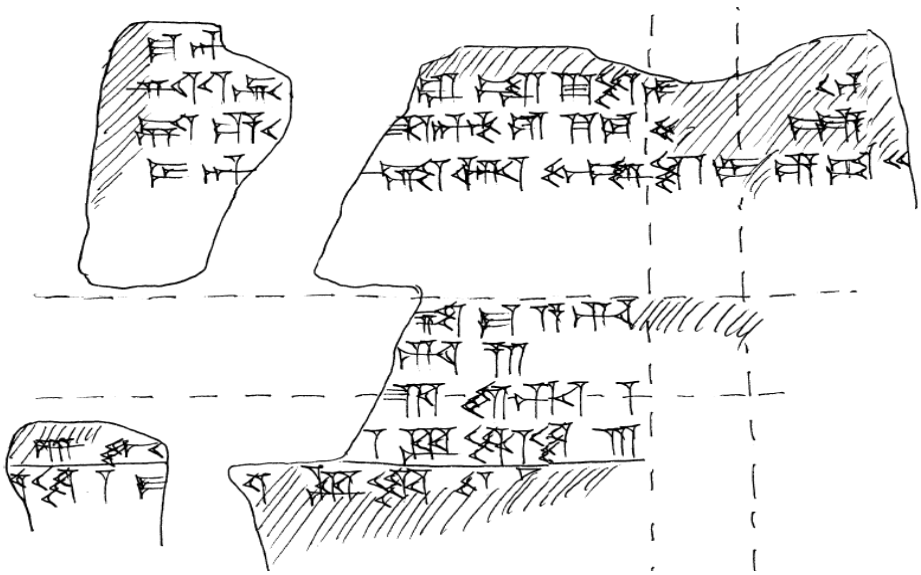


Plate 41, copy of H22.

1 Obv.-Rev. (a)-*]la-an[...*(b)*....*(a)*]ta[*
2...(a)*]ni-ru-uš.....*(b)-*]a il-lu-te-la[.....*(a)*a]rʔ-ka š[u*
3...(a)*]x-uš e-x[.....*(b)*b]aʔ-an-ti-ib ku-ba-bu [ ]-ya* (a)-*ma-ap*
4....(a)*]ba-an..*(b)-*a]š-ta-ar wi-il-li-it [ ]e-ta a-w[aʔ....*(a)*]iš-te[*
5 *uš-]ta-ma-ri [*
6 *ša-aḫ-]ri4*
7 Rev. *]ša-aḫ-ri 1*
8...(a) *]ir-bu-t[e* (b)*]qáb-li-te 3*
9...(a) *-l]i-te 1 š[aʔ-* (b)-*t]eʔ 1 qáb-li-[t]e 1*

Figure 26, transliteration of H22.

H23 (R.Š. 18.282)

Plate 42, copy of H23.

1 Obv. *-]ni an[-*
2 *na-a]t-qáb-li 4 [*
3 *š]a-aḫ-ri 1 z[i-ir-te*
4 *š]a-aḫ-ri 2 z[i-ir-te*
5 *]ir-bu-te 1 na-a[t-qáb-li*
6 Rev. *ša-]aḫ-ri 2 z[ir-te*
7 *na-a]t-qáb-l[i*

Figure 27, transliteration of H23.

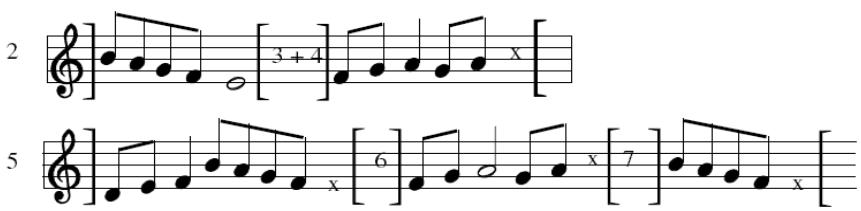


Plate 43, musical interpretation of H23.

H24 (R.Š. 19.144)

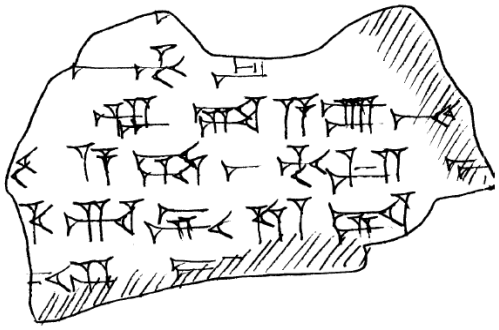


Plate 44, copy of H24.

1	Obv.	Traces
2		*a-ša]-aš-ti-ib [*
3		*-]en ta-a-u-n[a*
4		*]x a-da-aš-ti-ib*
5		*-]ḫa-ri-ni-ru-uš [*
6		*n]i-ru-uš [*

Figure 28, transliteration of H24.

H25 (R.Š. 19.145)

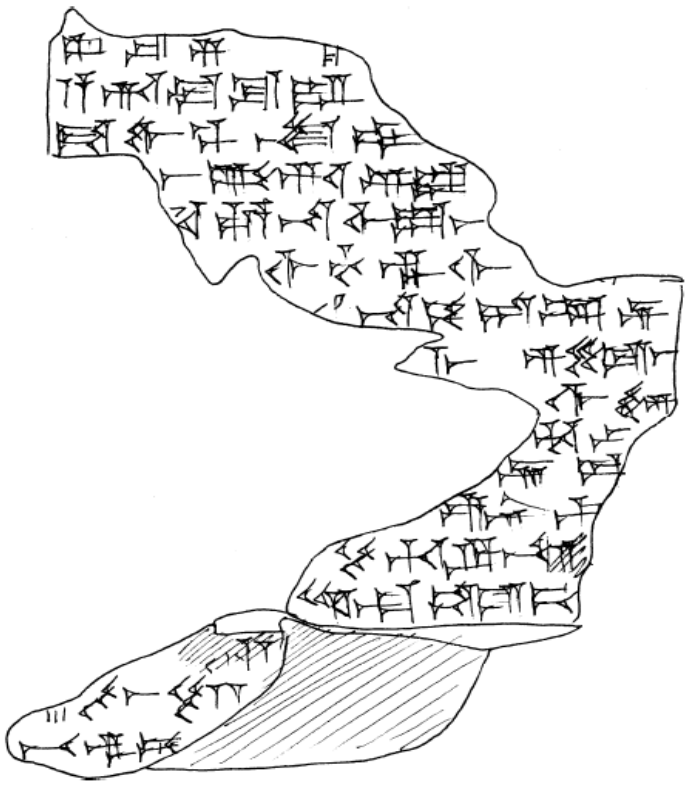


Plate 45, copy of H25.

1	Obv.	*ú-zu-ni [ ]x[*
2		*a-ri-la-zu-ra [*
3		*ša-wu-un aš-tu-ḫu-ur[*
4		*[x-x]aš ú-ri-ni-ra [*
5		*ḫ]u-un-na ši-ra-x [*
6		*]ši-ti-en-si x x[*
7		*] x-na-up-du-um ni [*
8		*]x zi-zu-n[u?*
9		*] ši-im[-*
10		*]ḫu-x[*
11		*] ir-ma[-*
12	rev.	*e-ni i[p-*
13		*] še-ḫu-ur-na a-x[*
14		*]x-li 1? -*
15		*]x-li 1 ?[*
16		*[i]r-bu-te 1 [*
17		*be-en-ta[-am-ma*

Figure 29, transliteration of H25.

H26 (R.Š. 19.151)

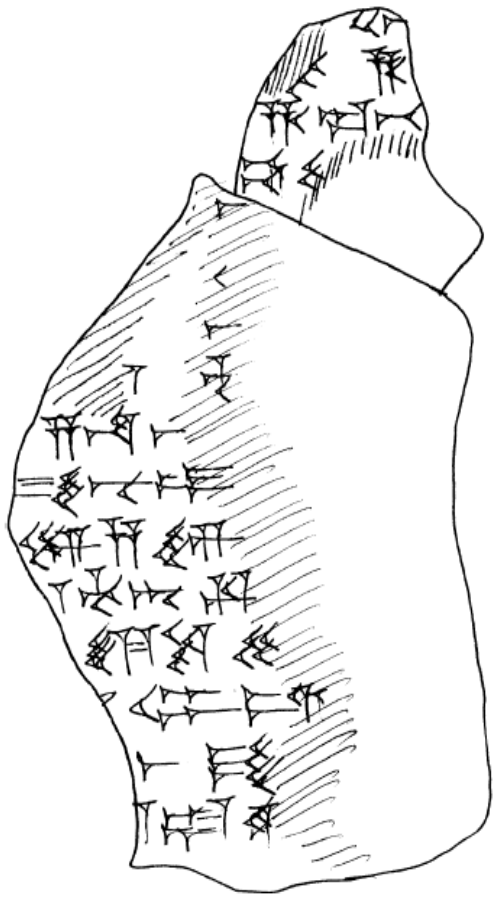


Plate 46, copy of H26.

1	Traces	
2		*]x ḫa-[*
3	Rev.	*]ḫa-ba ʔ-bi ʔ[*
4		*ša-a]š-ša-t[e*
5-8	Traces	
9		*-u]nʔ-na x[*
10		*pu-]gar-nu ḫur-x[*
11		*]imʔ-za-aḫ[-*
12		*]1 ʔ ti-tar-qá[b-li*
13		*-]šar-te pu-[gar-nu*
14		*]x mi-iš[-*
15		*p]u-gar-nu*
16		*n]a-at-kib-l[i*

Figure 30, transliteration of H26.

H27(R.Š.19.153)

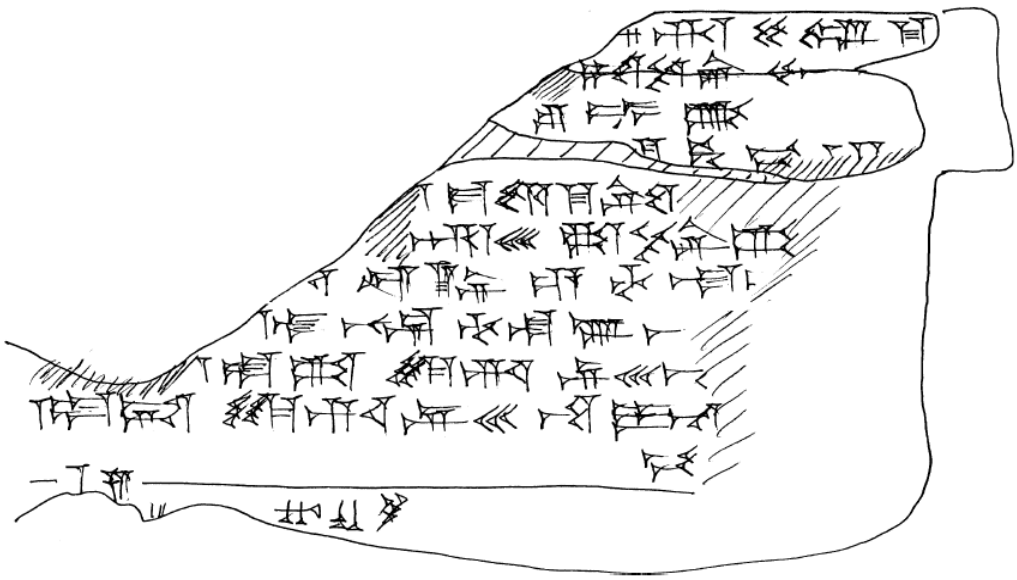


Plate 47, copy of H27.

1		*]x-ri še-el-l[u-*
2		*-]it-te-ni hi-x[*
3		*z]u-ug-ga*
4		*]ku-ub-bi-ib [*
5		*]x ma-li-ku-ta-x[*
6		*]x-re-eš ta-še-ni ta[-*
7		*]x zu-lu-ni-e ti-la-u [*
8		*]x-la-nu-um ti-la-u x][*
9		*[ta-at-ta šar-ri-ni-eš na[-i-na*
10		*t]a-at-ta sar-ri-ni-eš na-i-na[*
11		*[*
12		*-t]eʔ 4*
1	Obv.	*]še-a-n[i]x[*
2		*]x-bi*

Figure 31, transliteration of H27.

H28 (R.Š. 10.1576)

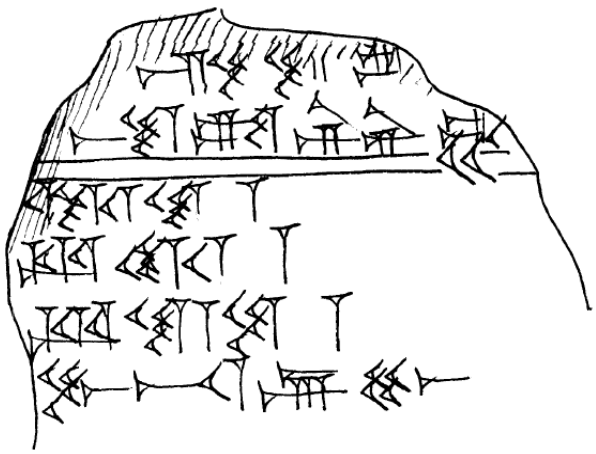


Plate 48, copy of H28.

1-2	Obv. Traces	
2	*]qáb?-ḫ[u ?*	*]zi-li-u*
4		*]x-te ta--ni-ni-sa [*
5		*qá]b-li-te 1*
6		*ti-ta]r-qáb-li 1*
7		*]qáb-li-te 1*
8	*]ša-aḫ-[ri*	*um]-bu-bu 1 ir-bu-te 1*

Figure 32, transliteration of H28.

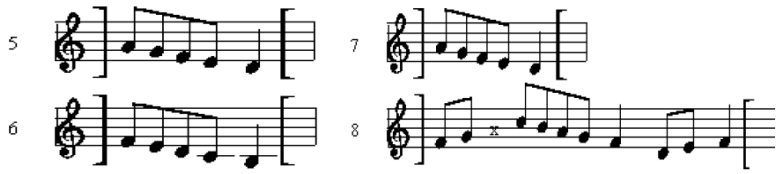


Plate 49, musical interpretation of H28.

H29 (R.Š. 19.157a)

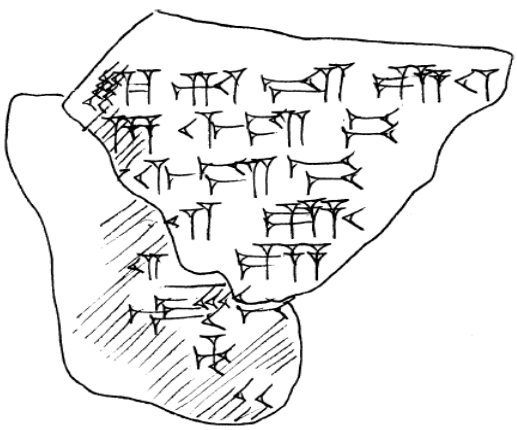


Plate 50, copy of H29.

1	Obv.	*]šar-ri-iš un-š[i-iš*
2		*u]n-ši-iš bi-[*
3		*u]n-ši-iš bi-[*
4		*]šar-ri-i[š un-š[-iš*
5		*šar-ri-i[š un-š[-iš*
6		*p]u-gar-nu [*
7		*ti[*
8	Traces	

Figure 33, transliteration of H29.

H30 (R.Š. 19.164b)

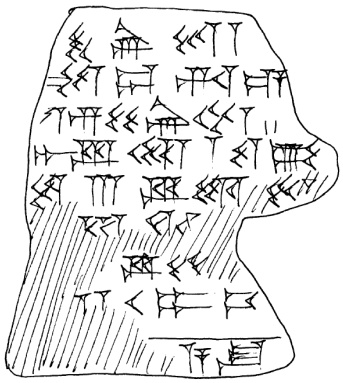


Plate 51, copy of H30.

1	Obv.	*z]i-ir-te 1 [*
2		*zi-i]r-te du-ri-e [*
3		*] 5? zi-ir-te 2 [*
4		*ti-]tar-qáb-li 1 ud-ga[-*
5		*-]te 3 qáb-li-t[e*
6		*]qáb-li [*
7		*qáb-li [*
8	Rev.	*2? mi-i[š-*
9		*]*
10		*-y]a* ŠU^{m}*[*

..

Figure 34, transliteration of H30.

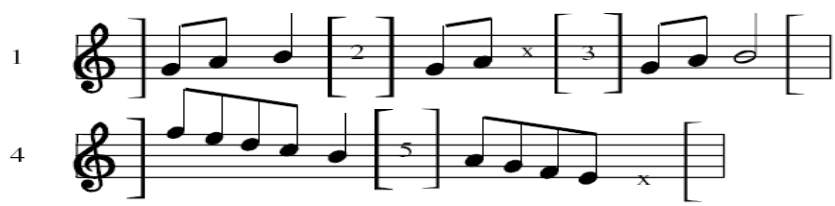
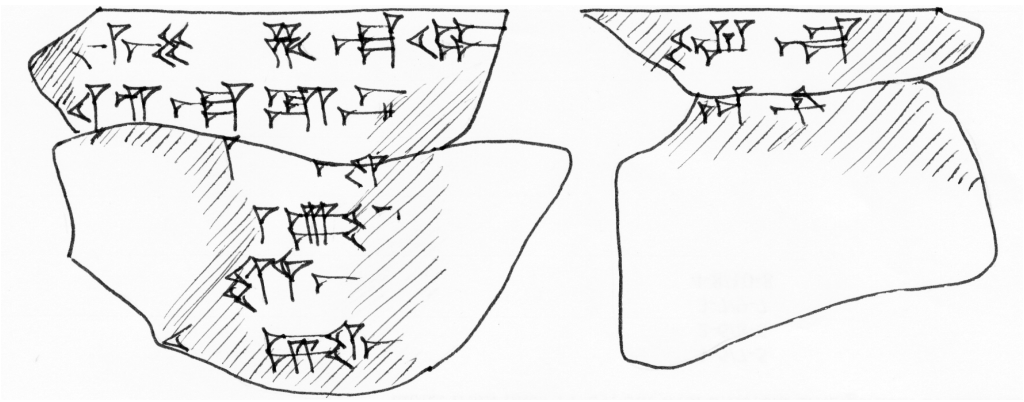


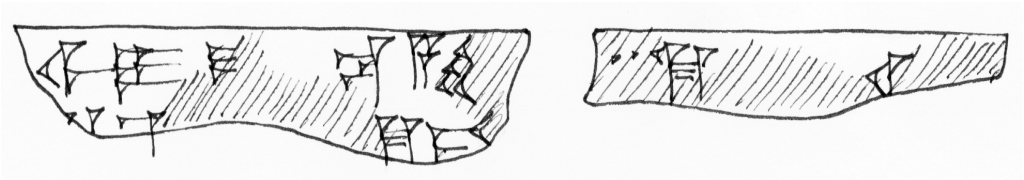
Plate 52, musical interpretation of H30.

Fragments

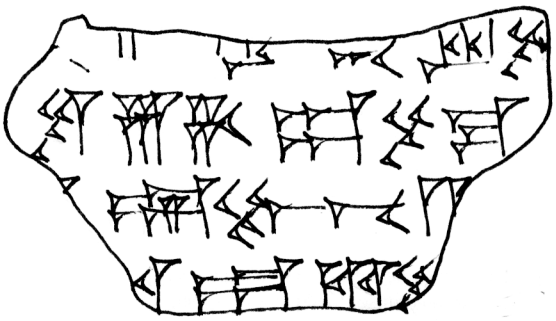
RS 19.164 e



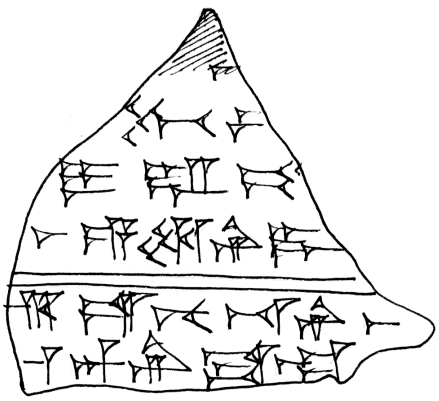
RS 19.164 f



RS 19.164 g



RS 19.164 h



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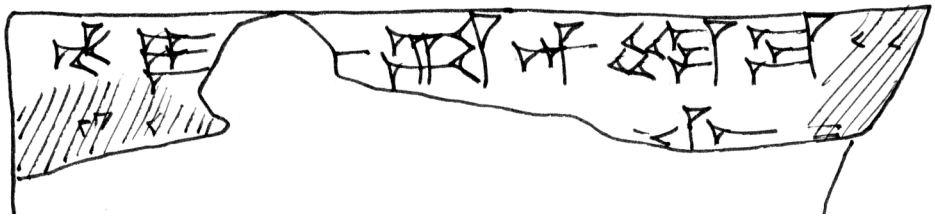
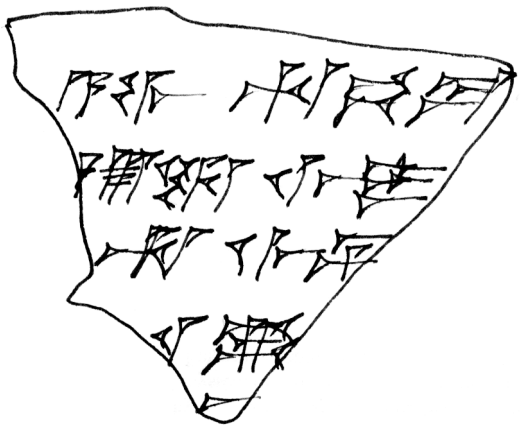


RS 19.164 j

RS 19.164 k



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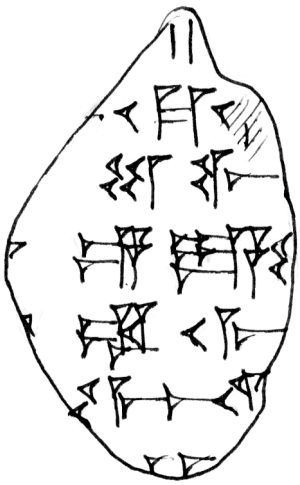

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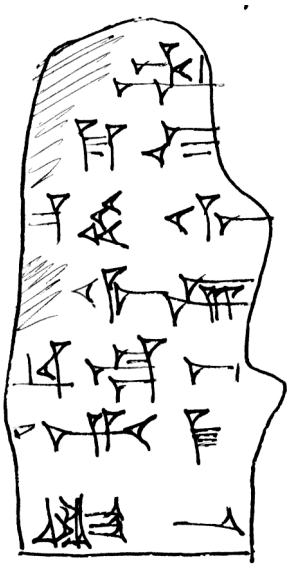

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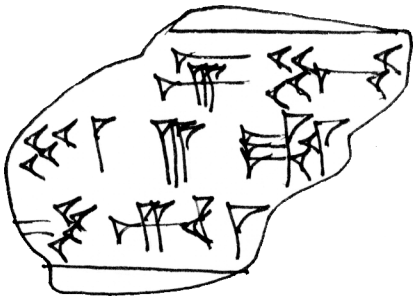

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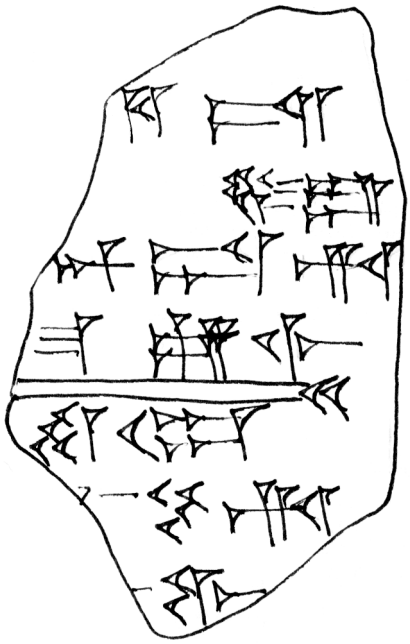
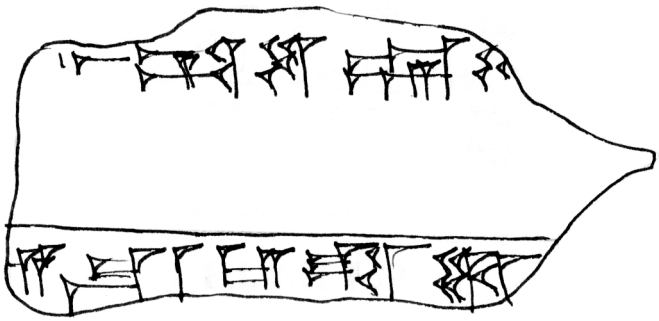


RS 19.164 p



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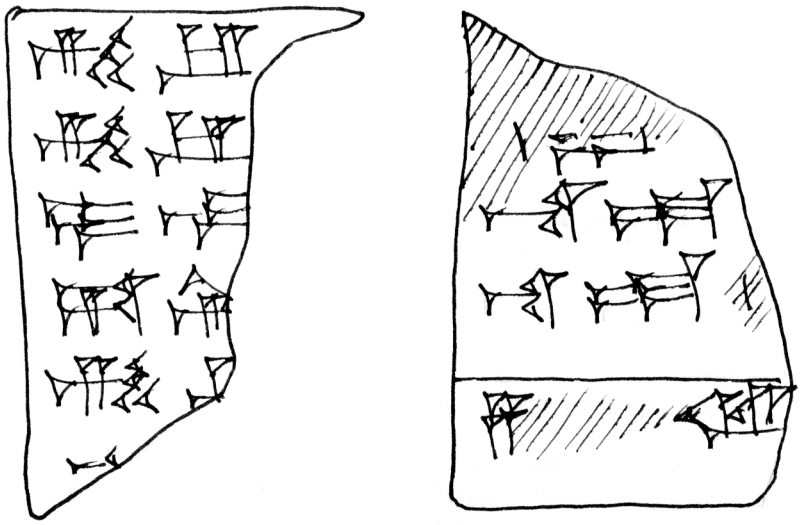
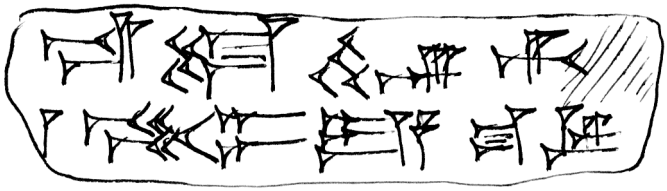


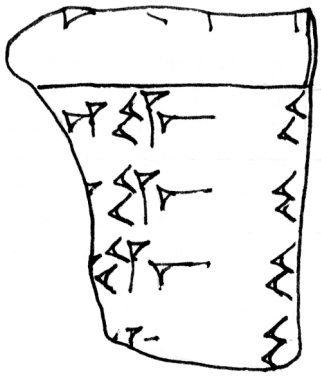
RS 19.164 r

RS 19.164 s



RS 19.164 t

RS 19.164 u



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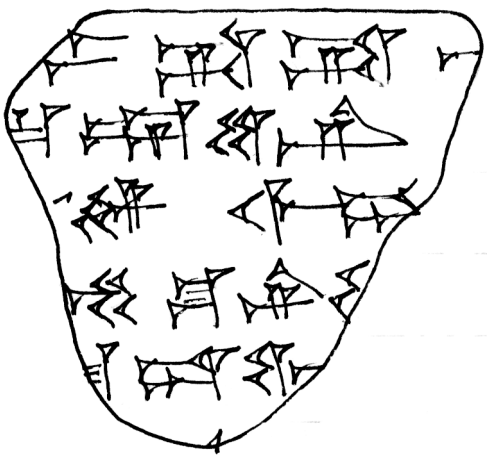

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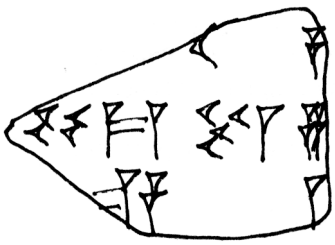

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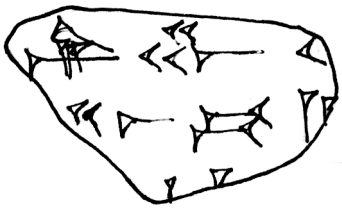

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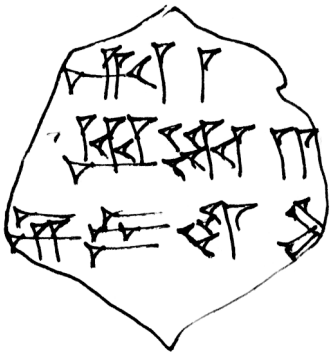

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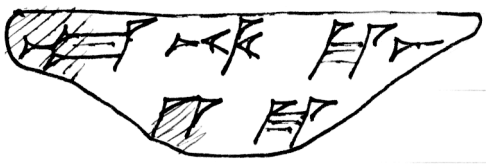

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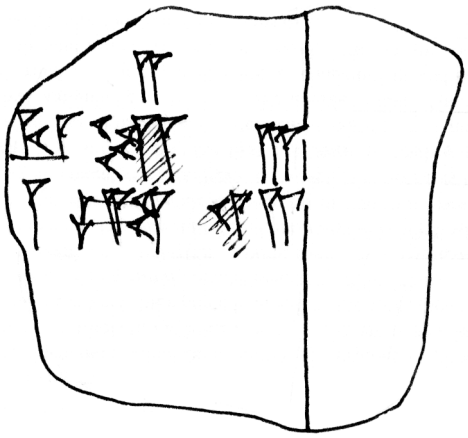

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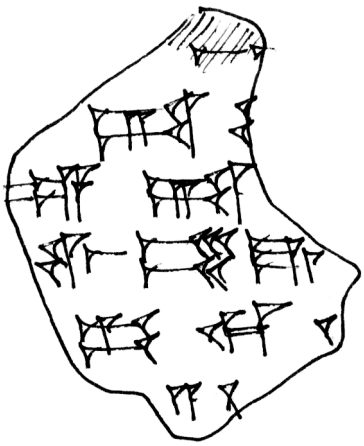
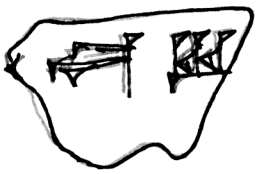


RS 19.164 dd

RS 19.164 ee

RS 19.164 ff

RS 19.164 gg



RS 19.164 hh

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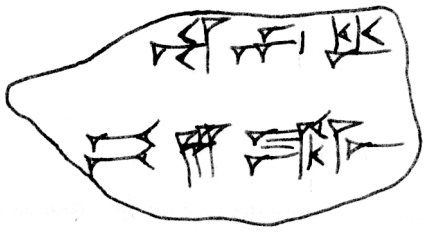
RS 19.164 kk

RS 19.164 ll

RS 19.164 mm

RS 19.164 nn



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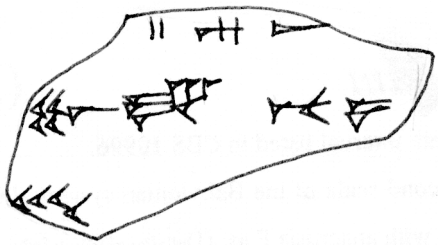


RS 19.164 pp

RS 19.164 qq

Conclusion

Only about ten per cent of what had originally been written in the Hurrian musical texts has survived. This reveals repetition of patterns of terms from which a statistical model has been created enabling us to reconstruct some of the rules of composition.

About 27% of the intervals are descending fifths and 73% are ascending thirds.. Of the descending fifths there are 10% of *nidqibli;* 6.6% of *qablite;* 4.4% of *kitme;* 2.2% of *pitum*(*pentamma?);* 0.5% of *niš gabari* and 0.5% of *išarte*. With ascending thirds there are 16.6% of *šaḫri;* 15.5% of *irbute;* 11.6% of *šaššate;*11.1% of *zirte;* 8.8% of *titimišarte;* 6.6% of *titarqabli* and 2.2% of *ešgi.*

The Hurrian hymns are written within a span of 13 notes but if the 2 treble ascending thirds, *titarqabli* and *ešgi*, were to be played at the octave below then the span would be reduced to 11. It follows that in the mid-second millennium BC, with regard to the Hurrian civilisation, the ideal span would have been 13 degrees.

An analysis of the recurrence of groups of two intervals shows that the favoured associations of ascending thirds are:

1 *šaššate-irbute* = e-f-g/d-e-f, occurring 8 times;
2 *zirte-šaḫri* = g-a-b/f-g-a, occurring 7 times;
3 *šaḫri-zirte* = f-g-a/g-a-b, occurring 6 times;
4 *titarqabli-titimišarte* = b-c-d/a-b-c, occurring 5 times;
5 *šaḫri-šaššate* = f-g-a/e-f-g, occurring 5 times.

The adjective *ašḫuwe* follows *šaḫri,* in H5 at line 20, followed by *pugarna. Durie* is also associated with *šaḫri*. *Kazae* follows *irbute* on one occasion; *ḫapšema* follows *huzaweša* in H4, line e and follows *titimisarte* in H2, line 29; *ḫizawesa* follows *natqabli* in H4, line 2 and *irbute* in H5, line 18?; *etamašeani* starts line 27 in H2 and seems to be the second term of line 10 in H10; *pugarna* follows *titarqabli* in H5, line 19 and in the same tablet is associated as: *šaḫri ašḫuwe pugarna*. *Pugarna* is seen in H2, line 32 preceding *kitme* and starts the line. *Uštamari* ends lines in two instances, H6 and H22.*Pentamma* precedes *kablite* in H2, line 3.

BOOK III

Organology

I - Harps and Balags

Table of contents

Introduction 178

Harps 179
Philology 181
Morphological classification 185
Index to periods 185
Iconography 185

The Balag 224
Tentative iconography 226

List of illustrations
Plates

A number placed at the end of a caption corresponds to the iconographic classification of the author.

Plate 1, a, gišban; b, giš ban.tur 181
Plate 2, detail of Assyrian harp 183
Plate 3, Uruk period pictograph 37 185
Plate 4, seal impression from the Royal Cemetery at Ur 13 186
Plate 5, impression from seal cylinder. Nippur 10 187
Plate 6, impression from seal cylinder. Ur 4 187
Plate 7, stone relief from Kiš 17 187
Plate 8, stone stele and detail. Kiš 16 188
Plate 9, stone slab and detail 453 189
Plate 10, stone stele and detail 455 189
Plate 11, stone stele and detail. Tell Agrab 454 190
Plate 12, seal cylinder impression from Ur 11 190
Plate 13, detail of Pl. 9 191
Plate 14, Akkadian impression from seal cylinder 35 191
Plate 15, seal impression, and detail. PU ABI's tomb. Ur 8 192
Plate 16, seal impression on bulla 701 192
Plate 17, seal impression on jar sealing and detail 3 192
Plate 18, seal impression and detail 5 193
Plate 19, Uruk period pictographs 37 194
Plate 20, seal impression from Choga Minsh, Iran 1 194
Plate 21, impression from cylinder seal 38 194
Plate 22, medium bistructural arched harp 42 195
Plate 23, two harpists from Mari. Gypsum statuette 171 196
Plate 24, steatite vase from Bismaya 34 198
Plate 25, stamped terracotta from Eshnunna 27 199
Plate 26, stamped terracotta from Eshnunna 33 199
Plate 27, stamped terracotta from Eshnunna 32 200
Plate 28, stamped terracotta from Eshnunna 30 200
Plate 29, stamped terracotta from Eshnunna 31 201

Plate 30, stone relief from Niniveh 176 202
Plate 31, Elamite seal impression from the royal cemetery at Ur 14 203
Plate 32, bronze relief from Nihawand, Iran 400 203
Plate 33, stamped terracotta from Isin Larsa 19 204
Plate 34, stamped terracotta from Isin Larsa 21 205
Plate 35, stamped terracotta from Isin Larsa 22 205
Plate 36, stamped terracotta from Isin Larsa 23 206
Plate 37, stamped terracotta from Isin Larsa 24 206
Plate 38, stamped terracotta from Isin Larsa 25 207
Plate 39, stamped terracotta from Isin Larsa 26 207
Plate 40, stamped terracotta from Isin Larsa 74 208
Plate 41, seal cylinder. Elamite 6 208
Plate 42, seal cylinder from Tell Atchana 7 209
Plate 43, stone slab 55 209
Plate 44, bronze stand from Curium, Cyprus 53 209
Plate 45, seal cylinder from Susa, Iran 12 210
Plate 46, bronze relief from Kirman Shah 57 210
Plate 47, terracotta statuette 344 211
Plate 48, terracotta statuette 63 211
Plate 49, terracotta statuette 64 212
Plate 50, terracotta statuette 65 212
Plate 51, terracotta statuette 66 213
Plate 52, terracotta statuette 67 213
Plate 53, terracotta statuette 68 214
Plate 54, terracotta statuette 69 214
Plate 55, terracotta statuette 70 215
Plate 56, terracotta statuette 71 215
Plate 57, terracotta statuette 72 216
Plate 58, terracotta statuette 73 216
Plate 59, terracotta statuette 75 217
Plate 60, terracotta statuette 62 217
Plate 61, stone relief 380 218
Plate 62, stone relief from Niniveh 59 219
Plate 63, graffito from Megiddo? 275 221
Plate 64, seal cylinder from Usiye 51 221
Plate 65, seal cylinder from Hammam 20 222
Plate 66, extant model. Pu Abi's Tomb, Ur 52 222
Plate 67, terracotta statuette 259 223
Plate 68, seal impression. Ur, royal cemetery 15 223
Plate 69, evolution of the sign 224
Plate 70, stone stele fron Susa 186 226
Plate 71, seal impression. Southern Mesopotamia 166 226
Plate 72, seal impression from Selenkahiye 448 226

Introduction

The science of organology has conscientiously divided musical instruments[1] into idiophones, aerophones, chordophones and membranophones. Whilst this is a convenient method in respect of the modern instrumentarium, it is not appropriate to the archaeo-musicologist[2] who should not relate instruments only on the basis of their primary morphology. Indeed, the snares of a modern drum does not make of it a stringed instrument.

In terms of archaeomusicology stringed instruments with soundboxes and soundboards[3] belong to the percussion family, since in all cases these instruments consist of a soundbox which is nothing but a drum fitted with strings. The strings activate the soundboard in place of hands, sticks or any other implement[4].

The palaeography of Uruk, Jemdet Nasr and later stylised[5] Ur Archaic signs leaves us with no doubt about this early association and its subsequent classification relating the strings to the percussion.

It follows that the vast Assyrian musical terminology generally distinguishes the percussion from the stringed instruments by the means of determinatives such as GIŠ, 'wood' and KUŠ[6] , 'leather', for strings and for percussion respectively when there is a risk of confusion between them.

Hence the reason for lexical texts to list both a giš.à.lá and a kuš.à.lá; a giš.balag and a kuš.balag, and why we have a giš.zà.mí but no kuš.zà.mí or a giš.gù.dé but no kuš.gù.dé. The ala and the balag were known either as percussion or stringed instruments and were differentiated by means of their determinatives[7] .

1 This classification was devised by E.M. von Hornbostel and C. Sachs. See *Zeitschrift für Ethnologie*, 46 (1914) 553-90; C. Sachs, *History of Musical Instruments* (New York 1940) 454-67; K. Wachsmann in *New Grove Dictionary of Music and Musicians* (ed. S. Sadie London, 1980) ix 237-45.

2 The same applies to the philologist who should not relate languages on the sole basis of the homophony of words they have in common.

3 Following the concept of this classification methodology, stringed instruments with resonators in place of sound boxes and boards would belong to another group. b) A soundbox is a resonator whilst a soundboard is an amplifier. A soundboard needs a resonator but a resonator does not need a soundboard.

4 Some Ancient Greek writers adopted other classification methods: Ath. 636c, Nichomacus, *Enchiridion* 2 p. 240. 22J., Cassiod. *Mus.*6. 1209c. It is common to find the instruments divided into 'blown' or 'strung' (Aristoxenus fr. 95, Aristocles ap. Ath. 174c, Manilius *Astr.* 5. 331, Poll. 4 58f., Aristid. Quint. p. 85. 3ff., *al.*) percussion instruments are either unclassified or listed among stringed instruments as 'struck'. Anonymous Bellermanni 17 has 'blown', 'strung' and 'bare' (*psila)*, including the voice and 'musical jars'.

5 The early Sumerian pictographs were later stylised (that is, made suitable for the stylus) by the time of the Old Akkadian period thus the Sumerian pictographs of ox-heads, for instance, were the predecessors of their later cuneiform sign. See Alfred Kallir, *Sign and Design*, ed. James Clarke (London 1961) 20.

6 See lexical section *q.v.*

7 Determinatives were written but probably not spoken, or if they were, it would have been in rare cases and probably because of ignorance.

The zami and the gude would only have been known as stringed paradigms because there were no percussion instruments which shared their names.

Other determinatives were used to state the same purpose, for instance, GI[1] for reed items was generally used for pipes whilst 'URUDU', the determinative for copper, was used as a qualifier to distinguish between two percussion instruments, one of which having a copper infrastructure.

Harps

The harp[2] is the oldest form of stringed instrument and probably owes its origin to the archer's bow, the hypothetical Sumerian bantur. A hunter would have observed that if a calabash was gouged out - it might have been his empty water gourd - and placed somewhere along his bow, then the vibrations produced by the string when it was plucked became amplified. This was simple enough and the principle must be as old as the bow itself[3]. It follows that from a crescent-shaped frame, probably one of these typically bent and hollowed out calabashes which constituted the body of the early instrument, a series of strings would have been stretched allowing for space between each one for the fingers to pluck freely without disturbing the other strings. The strings would originally have been made of gut as known from the Sumerian logogram sa, Akkadian *pitnu*, meaning 'gut' and 'gut-string'. Initially the infrastructure would not have allowed for more than 5 strings but usually restricted to 3 as the iconography generally shows during the Uruk period.

It is reasonable to assume that the strings on one instrument were all of the same section as they would have been made of twisted gut from the same species of animal.

1 *Sub embūbum* in the lexicon.
2 Lexicon, *sub sammû*
3 'In the ordinary bow the two ends of a flexible stick are connected by a string which is sometimes cut directly from the outer surface of the stick. To intensify the resulting faint sound a gourd, calabash or pot is usually attached or the string is held in the mouth. The string is plucked, struck, or scraped with a stick'. Marius Schnieder, The New Oxford History of Music, Tome I, *Ancient and Oriental Music*, (1975) 36.

Assuming that the tension of the strings had been even since it is closest to breaking point that a string sounds at its best, then the scale produced would have naturally approportionated to the structure of the instrument: probably a tonic, a dominant and an octave note; it could have been a tonic, a subdominant and an octave dependant on variations in the infrastructure.

However the scale produced would always have been corrected to the player's natural or acquired intonations. It is therefore possible to assume that tunings such as c-g-c; c-f-c; c-f-g or c-g-a would have been among the favourites, allowing for the practice of pentatonism. It is only later that harps, as a result of diatonism, became angular. It is therefore reasonable to establish that generally whilst arched harps were designed for pentatonism, angular ones were the result of diatonism, or the reverse, since either could have been the cause or the consequence of the other.

Structurally the harp is also the simplest of all string instruments as the vibrations of its plucked strings are transmitted directly to the leather soundboard tension, pulling it away.

The Sumerian word for 'bow' is shared with that for the earliest form of arched-harp: giš.ban = Akkadian *qaštu (tilpānu)*, with postpositioned adjective 'tur' meaning 'small' to qualify the musical instrument which would have been smaller than the hunting-bow, or to differentiate it from a larger musical instruments.

The same word 'ban' with determinative 'mul' is used to name the constellations *Puppis* and *canis majoris*, the 'big dog', that is listed in *Šulgi Hymn B* among instruments:

> I taught/knew how to pluck the strings of the *mirītum*.
>
> The *urzababa* instrument, the *ḫarḫar*, the *zanarû*.
>
> The 'Big dog', the *giš.dim*, that gives sounds like (the cries of) the boatmen[1].

The same word is further used as a name for the planet Venus to which the goddess Inanna =*Ištar* is equated, thus associating the deity with this early form of arched-harp.

1 Translation taken from the edition of G.R. Castellino, *Two Shulgi Hymns* (B, & C), Studi Semitici, vol. 42 (Rome, 1972) 47-49, ll.155-172.

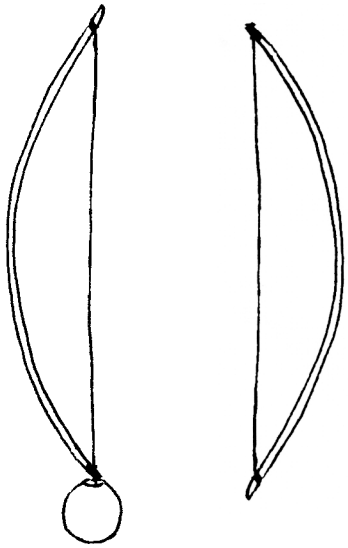


Plate 1, a, gišban; b, gišban.tur.

Philology

The past decades have been the scene of many a passionate philological debate regarding the hypothetical Sumerian word ZÀ.MÍ, loaned into the Akkadian *sammû*[1], as being a term for the harp or another string instrument. Since no appropriate lexical text of organological classification has yet reached us, these instruments have been confused.

Professor Kilmer has hypothesised[2] that the Akkadian technical term *apsammiku*[3], Sumerian ÁB.ZÀ.MÍ, textually 'cow of the ZÀ.MÍ', with a pun on Akkadian *appu*, 'nose' that describes the concave sided tetragon would refer to the boviform lyre on the basis that the stylised rendering of the bovid's nose is seen in all types of boviform lyres. Furthermore[4], Kilmer writes that the following Sumerian terms: GÁN ZÀ.MÍ = *eqel sammîm* 'plane of the ZÀ.MÍ', a trapezoid? GEŠTÚ.ZÀ.MÍ = *ḫasis sammîm*, 'ear of the ZÀ.MÍinstrument', a geometric shape; and GÁN GEŠTÚ.ZÀ.MÍ, 'plane of the ear of the ZÀ.MÍ'- another geometric shape, are old Babylonian geometric technological terms which seem to have developed from the highly stylised features of III[rd] millennium bovine lyres.

1 *q.v.* lexicon.
2 RLA 1983, sub Leier, p.572, ḫ I.
3 Lexicon, *q.v.*
4 *Ibid.*, p.574, 5.

However, Professor Gurney[1] brought to our attention that the British Museum has certain reliefs of vertical Assyrian harps of the seventh century BC[2] having on the side of their soundboxes, carved concave-sided rectangles likened to the shape under scrutiny. Taken in conjunction, a mathematical tablet[3] shows a figure which resembles the holes on the harps. The Sumerian name for the figure, GEŠTÚ.ZÀ.MÍ, Akkadian *ḫasis sammîm*, translating as 'ear of the *sammû*-instrument' seems a very appropriate equation. In a commentary[4], another line has: ÁB.ZÀ.MÍ//*ḫa-si-si*//*áš-šú* U *ap-ta sá-am-mu-ú* ÁB.ZÀ.MÍ = ear, because (it is) an aperture in the *sammû*-instrument' which seems to define 'ear' as the 'hole' and not as the 'appendage'. Thus 'ÁB' in 'ÁB.ZÀ.MÍ' would be a phonetic variant[5]. The Akkadian *ḫasisi* 'ear' is found in a lexical text[6] to equate with the Sumerian giš.kak zà.mí translated by Kilmer as 'ear or intelligence' of the lyre but only with regard to the Akkadian and not with the Sumerian giš.kak, which has the meaning of 'peg' of wood[7]. Gurney further mentioned that the line with this equivalence came from two late school tablets and suggested that the scribe had conflated them in the course of transmission[8].

In spite of the fact that two texts mention the term 'ear' in relation to the *sammû*, the *Chicago Assyrian Dictionary* persists in translating the term as 'lyre' even if not a trace of such an 'ear' is to be found on any lyre of any period in the Ancient Near East, or elsewhere. The purpose of these holes is very simple, for they have existed as long as harps have, allowing for strings to be replaced whenever they broke.

1 Gurney, O.R., and Lawergren, BO, '*Sound Holes and Geometrical Figures: Clues to the Terminology of Ancient Mesopotamian Harps'* IRAQ XLIX, (1987) 37-52.
2 BM 124802, (seven harps) members of King Teumman's Elamite orchestra, from the S.W. Palace at Niniveh, and BM 124920, BM 124922, (two harps) from Assurbanipal's North Palace at Niniveh.
3 BM 15285, published by H.W.F. Sagg in *Revue d'Assyriologie* (RA) 54 (1960) 131-146, and RA 19 (1922)149-58.
4 Hunger, H., *Spätbabylonische Texte aus Uruk*, 72, rev. 11.
5 Goetze had suggested as early as 1951, '*A mathematical compendium from Tell Harmal'*, Sumer 7 (1951) 137-8, that the term *apsammiku* had a different meaning derived from AB, 'aperture'.
6 ḪḪ VII B, line 86.
7 Such tuning pegs are well recognised in context with the *sabītum* instrument. See Spycket, *Anatolian Studies* 33 (1983) 46; lexicum, *q.v.*
8 l.86 giš.kak.zà.mí = <*si-ik-ka-tu*>; and l.86a <GIŠ.TÚG.PI (= geštú) zà.mí> = *ḫa-si-si.*

These holes are indispensable[1]. Their characteristic shape would have been the consequence of a specific technique for the replacement of strings but it is very doubtful that they would have had any connection with the shape of the bovid's[2] nose, specifically, or with the lyre generally. This alone would determine that by ZÀ.MÍ = *sammû*, it was the harp that was meant and not the lyre. It is useful to add that a lyre would not need to have any holes for the replacement of its strings because of its structure.

Plate 2, detail of Assyrian harp showing string holes. From BM 124922.

Evidence of a harp fitted with leather, probably referring to a leather soundboard, is attested in an Old Babylonian lexical text[3] as kuš[4].zà.mí. Furthermore, in an early Old Babylonian text[5] we have 2 wood-harps, 2 black goatskins which were used for them'. However, of all the lyres that were unearthed none has shown evidence that they were fitted with leather soundboards.

1 When a string broke, they would have pushed a new one through the appropriate hole on the soundboard until it showed up at the nearest aperture. Then the end bit would have been tied into a knot, or perhaps a giškak 'wooden peg' would have been used to secure it. Now such a peg is known nowadays to secure guitar strings onto the bridge through the soundboard and with a bit of imagination, they would look like ears in the sense that their showing extremity is rounded off with a hole on one side to allow passage for the string. giš kak.zà.mí would thus be a 'wrest-pin' and not a 'tuning-pin'.

2 Lawergren, B, and Gurney, O.R., '*Sound Holes and Geometric Figures*' IRAQ XLIX (1987).

3 MSL 7, 222:138.

4 KUŠ is the determinative for leather objects.

5 BIN 9, 352:I.

The reason being that, due to their structure, lyre soundboards could only have been made of wood. This hypothesis is reinforced by the fact that being ornate, in most cases during the mid II millennium, the stone, shell or other elements of mosaic could not have remained fixed to a leather soundboard. The bitumen[1] used to hold them would not have resisted the distortion of the skin under playing conditions. Generally, the iconography would have revealed evidence of pegs around the soundbox and there is no such evidence. On the other hand, pegs are clearly seen on many representations of harps of later periods, thus establishing a clear distinction between the materials used for their respective soundboards.

Madame Duchesne-Guillemin mentioned that in a lexical text[2] there is a zami instrument dedicated to the goddess *Ištar*, Sumerian $^{giš(d)}$INANNA, or 'instrument of the $^{(deity)}$*Ištar*'. For her the zami would equate to Akkadian *zannaru* which she thinks of as a lyre because it is represented and named as Hittite *zinar* on the Inandik vase[3], in two different sizes. Gurney thinks that the identification of the *zannaru-zinar* as lyres is plausible but there is no reason to believe that lyres only were dedicated to the goddess as revealed with the iconography where more harps than lyres are associated with her.

An Assyrian historical text[4] on Esarhaddon, who reigned between 680 and 669 BC, mentions a Syro-Palestinian campaign during which he killed Sanduarri the king of Kundi, Sizu and Abdimilkutte for their disobedience. He hung their heads from the necks of noblemen and paraded them in the streets of Niniveh to the sound of singers accompanied by the *sammû*. Also the identification of the *sammû* as a vertical harp is tentatively deduced from the fact that the most popular of stringed instruments played during that period, by the military, were vertical harps.

1 Bitumen would have been used as the glue for setting ornaments on the instruments.
2 Duchesne-Guillemin, M., Revue de Musicologie, 55, (1969) 10-11.
3 The Inandik vase. See Boehmer, R.M, *Die Reliefkeramik von Boğazköy* (Berlin 1983) 21.
4 From the Prism A, published by Rawlinson, Vol. I, Pls. 45 f. Translation: Luckenbill, *AR*, II, e527-528: '*I hung the heads of Sanduarri and of Abdimilkutte around the neck of their noble chief officials to show to the people the power of Ashur and paraded in the wide streets of Niniveh to the sound of singers accompanied by the sammu(s).*'

Morphological classification of harps

I Arched monostructural
A) Small period I-II
B) Medium period II-III
C) Large with pedestal period II
II Arched bistructutal period I
III Arched horizontal
A) Type A period I
B) Type B period IV
IV Angular horizontal period IV-VI
V Angular vertical period II-VII
VI Isiolated items period I-VII

Index to all periods (all BC)

Period I = pre 3000
Period II = 3000-2334
Period III = 2334-2000
Period IV = 2000-1500
Period V = 1500-1000
Period VI = 1000-500
Period VII = 500 onwards

Iconography

Ia/37-small arched monostructural harp.

Plate 3, Uruk period pictograph. Period I. 37

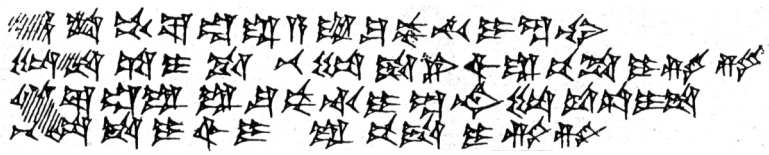
Rare example of an Uruk pictograph for which there is yet no equating phonetic value. This is probably one of the earliest pictorial representation of a harp. It is difficult to give credit to the number of the strings with which it is fitted. However, the sign would have been shared with other scribes and therefore the probablility that indeed it hosted three string is tangible and makes more organological sense that if it had hosted two or four strings.

Ia/13-small arched monostructural harp.

Plate 4. From a seal impression from the Royal Cemetery at Ur, Iraq. The second character from the left is playing a small trichord? harp to the accompaniment of a stick? two sets of rattles? and what could be some bell, in front of a seated deity, probably Inanna, holding a palm branch. Period II. 13

The instrument shown above is typical of the small vertical monostructural arched models. Its body is made of a single structure sharing both functions of string fastening, or tuning and sound amplification. In all probability it has three strings but there are no traces of tuning devices. Its roots would have been in prehistory and it is possible that it has survived until modern times without being depicted, other than briefly, at the second millennium; at least in the Ancient Near East.

The scene depicts two classes of citizens, naked slaves and freemen, presenting their respects to the figure on the far right of the seal. It is probably Inanna, as she holds a reed, one of her many symbols and that the scene includes her animals. The aster above her head would be Venus which also symbolises her. The scene could be the pictorial representation of a hymn sung to her. Cuneiform text AO 4479, at the Louvre in Paris, published in the *Revue d'Assytiologie,* XXII, is typical. Here are the first four lines:



Sing to the Goddess, the noblest of all
Honour her, the Queen of the people the geatest Igigi
Sing to Istar , the noblest of all
Honour her, the Queen of beings the greatest Igigi.

Ia/10-small arched monostructural harp.

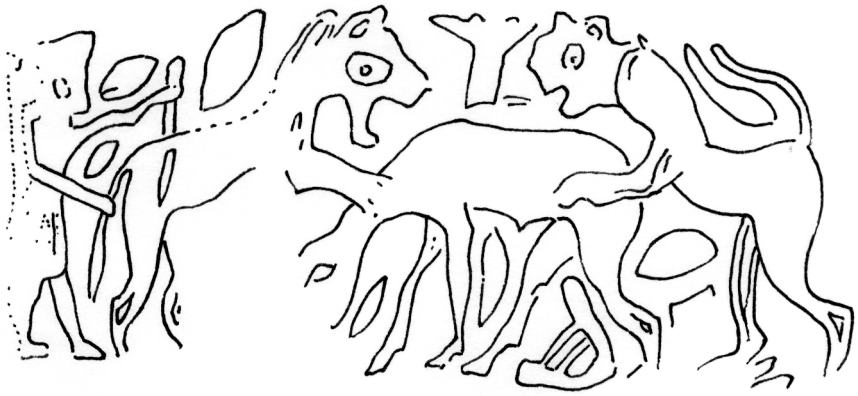


Plate 5. Impression from seal cylinder. Nippur, the Temple of Inanna. Period II. 10

Scenes with animals were typical of the art of the Ancient Near East. Here a character, perhaps Dumuzi, chases lions attacking one of Inanna's animals. Inanna is symbolised here as the harp.

Ib/4-medium arched monostructural harp.

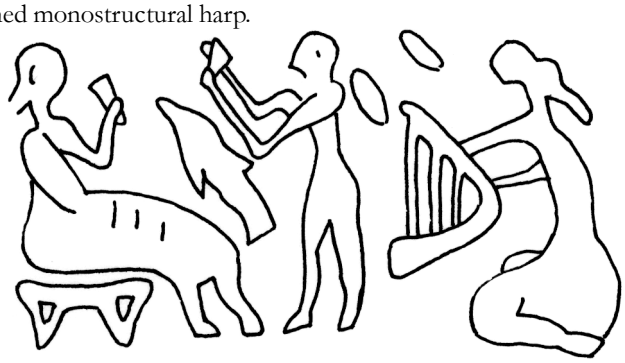


Plate 6, impression from seal cylinder. Ur, Iraq. Period II. 4

This medium size model is played left handedly, possibly by a woman. It is usually difficult to say if it had been the intention of the artist to depict a left or a right handed character or if this was the result of the composition of the scene.

Ib/17- medium arched monostructural harp.

Plate 7, stone relief from Kiš. Period I. 17

The stone reliefs above and below show that harps during the period of the city states from 3000 BC onwards had grown both in size and in the number of their strings. There is as yet no enlargement of the soundbox at the soundbox part. This also applies to the following examples below. The scenes depicted on these square stone slabs, which were used as wall plaques, are well recorded but include no instruments other than the harp or lyre. There is evidence that the designs were standardised since at least one example shows that a missing fragment had been replaced by one, probably from another artist and possibly some decades if not centuries later..

Ib/16- medium arched monostructural harp.

Plate 8, stone stele and detail. Kiš. Period II. 16

The scene depicted here is very typical. The top register shows two drinking characters facing each other. The one to the right is probably Enki we often see him with fish close to him and the other could be Inanna as there are animals under which are often seen in her company. The lower register has three oarsmen and a drinking character the identity of which is obscure. The scene could describe a variant on the mythological tale of Inanna's visit to Enki.

Ib/453- medium arched monostructural harp.

Plate 9, stone slab and detail. Period II. 453

The harpist is right handed and wears a kilt made from a pelt, typical of the period, whilst the woman has a more elaborate dress belted at the waist. Her arms are crossed in a way which may indicate she is dancing to the sound of the instrument.

Ib/455- medium arched monostructural harp.

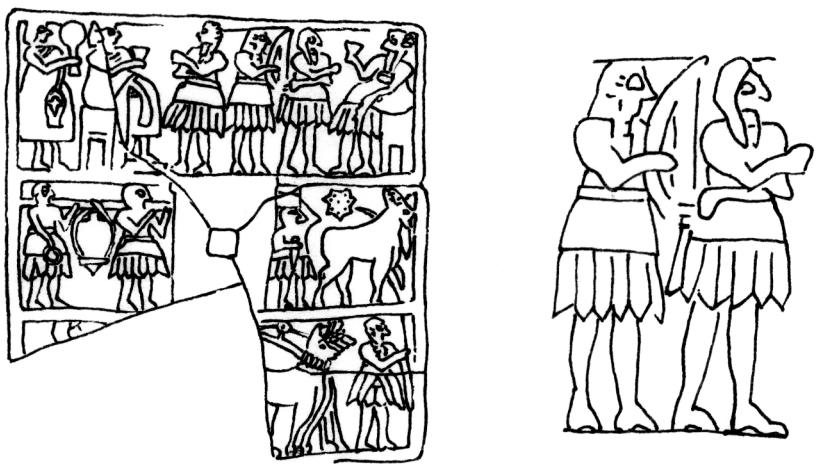


Plate 10, stone stele and detail. Khafajeh, Iraq. Period II. 455

Ib/454- medium arched monostructural harp.

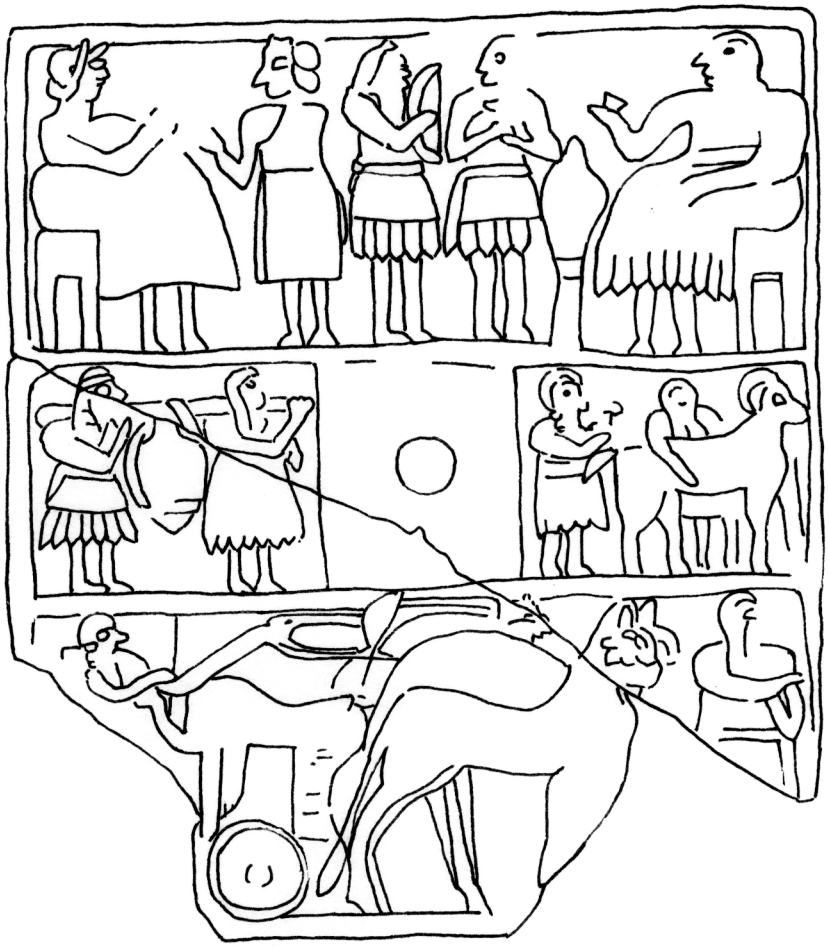


Plate 11, stone stele and detail. Tell Agrab, Iraq. Period II. 454

Ib/11- medium arched monostructural harp.

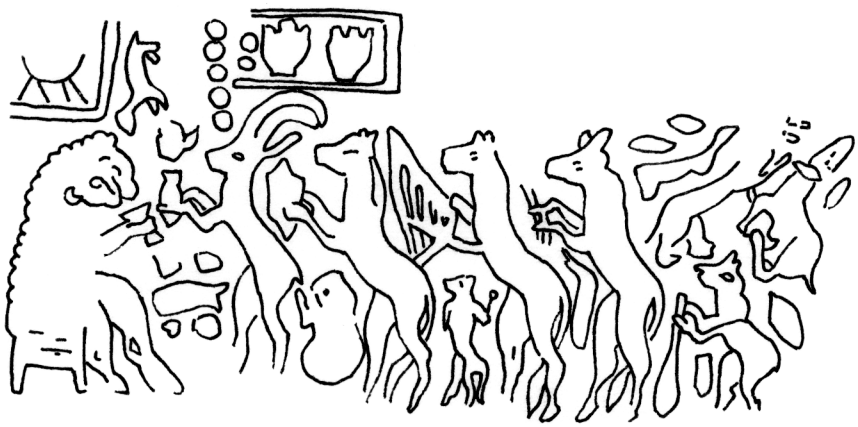


Plate 12, seal cylinder impression from Ur. Period II. 11

The humouristic scene above, where animals play the parts of human beings, is unique to Sumerian art. The crenellation on the top part of the harp has led to the proposition that this model was provided with tuning or spacing pegs.

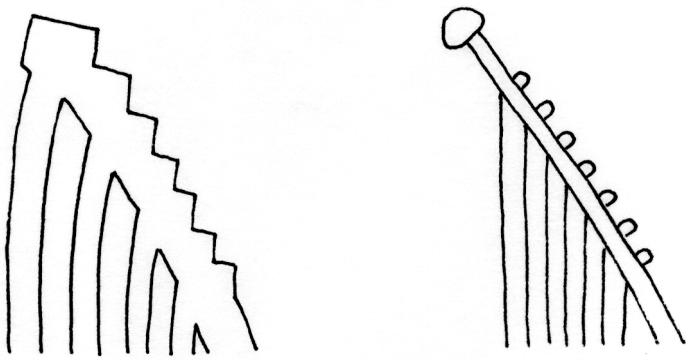


Plate 13, detail of Pl. 9 showing hypothetical pegs on the right figure from the original crenellation.

Ib/35- medium arched monostructural harp.

Plate 14, Akkadian impression from seal cylinder. Period III. 35

The harp above is probably one of the last monostructural paradigms to survive from that period. The prolongation of the top part probably indicates some foreign borrowing. It is possible it was Elamite on the grounds that later slender vertical angular types were seen in South West Iran at the same period.

Ic/8-large arched monostructural harp with pedestal.

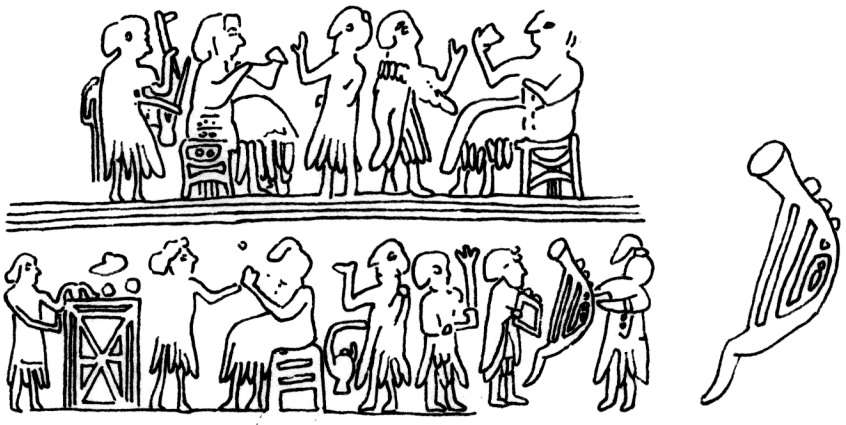


Plate 15, seal impression, and detail. PU ABI's tomb Ur. Period II. 8

Ic/2- large arched monostructural harp with pedestal.

Plate 16, seal impression, and detail. PU ABI's tomb Ur. Period II. 701

Ic/2- large arched monostructural harp with pedestal.

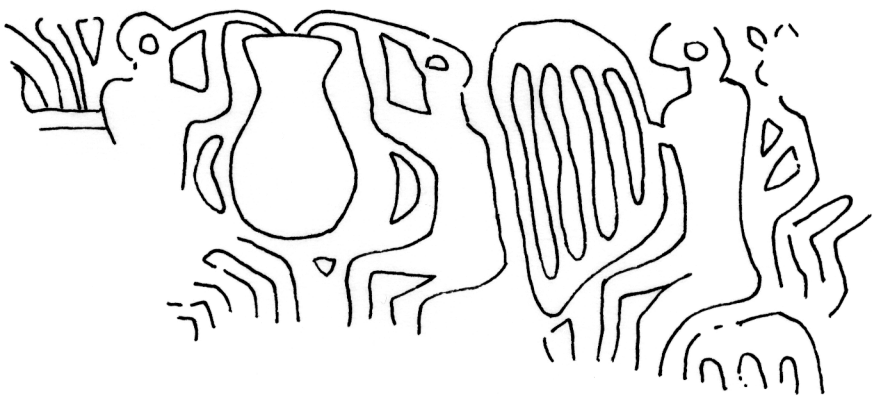


Plate 17, seal impression on jar sealing and detail. Period II. 3

Ic/5- large arched monostructural harp with pedestal.

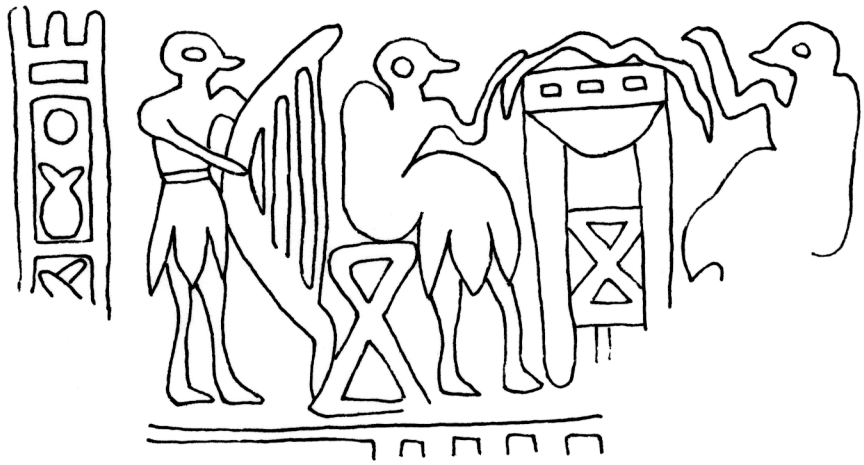


Plate 18, seal impression and detail. Period II. 5

The four examples shown above are only known in Mesopotamia at the period of the City States. Ancient Egypt has produced comparable types but only much later, during the 18th dynasty. They were smaller instruments with differing designs. The purpose of the foot was to adjust the instrument at an appropriate height for the player, as is the case today with the cello and the bass. It is probable that the name for this specific instrument was KAB.ZÀ.MÍ on the grounds that the Uruk pictograph and the Ur archaic sign for KAB depict a foot and in a lexical text[1] where the term is listed as KAB.zà.mí[2] among other names of stringed instruments.

1 Antagal A 155.
2 See lexicon *sub sammū.*

II/37-arched bistructural harp.

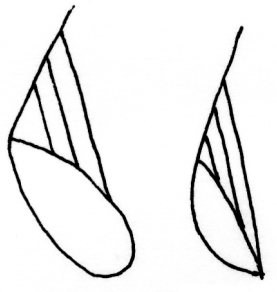


Plate 19, Uruk period pictographs. Period I. 37

II/1- arched bistructural harp.

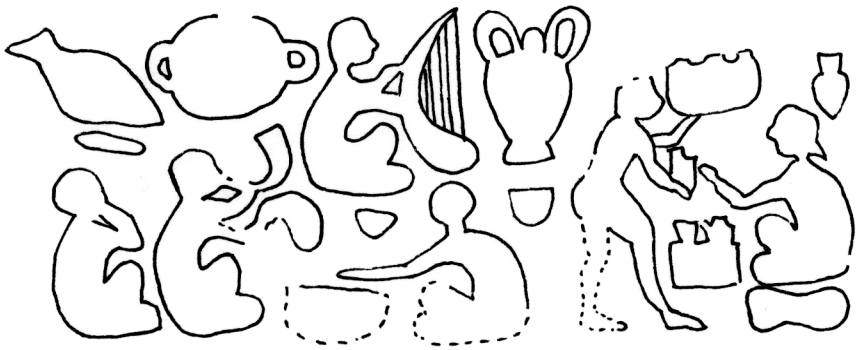


Plate 20, seal impression from Choga Minsh, Iran. Period I. 1

II/38- arched bistructural harp.

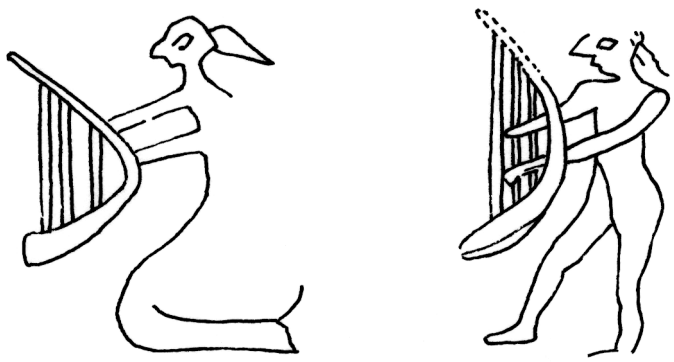


Plate 21, impression from cylinder seal. Period I. 38

The two instruments shown above have part of their structure which has now become a specialised soundbox and which is distinct from the yoke. These are bistructural paradigms. They would have constituted an intermediate type for a period during which the soundbox was enlarged in relation to the yoke. This constituted the first step towards structural specialisation: as the yoke acquired more density in order to resist the increase of tension from the growing number of strings, the soundbox expanded to provide with the appropriate amplification.

II/42-medium arched bistructural harp.

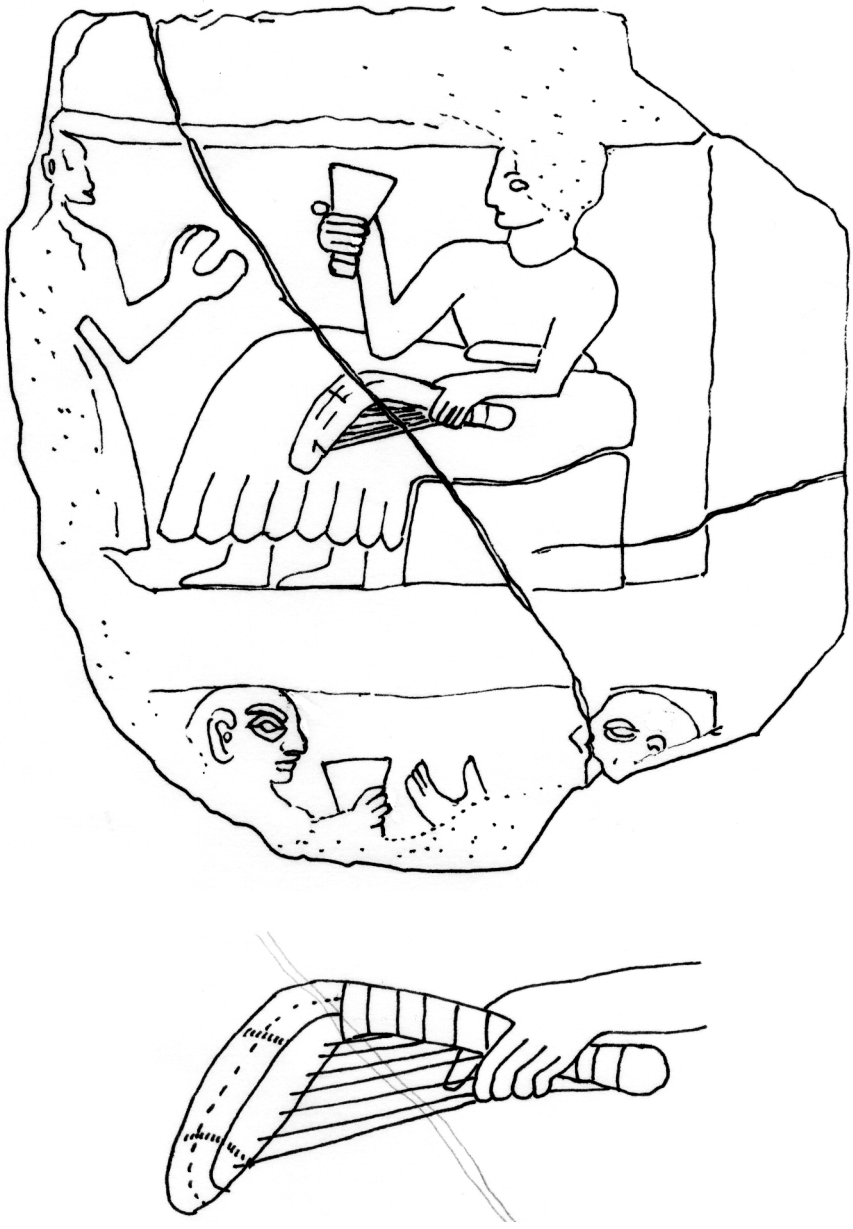


Plate 22, medium bistructural arched harp and detail. Gypsum slab. Period II. 42

This harp shows two distinct parts, the yoke and the soundbox. The number of strings in uncertain but it is possible that it hosted up to seven. It is located at the museum of Aleppo under the reference M.23 and Alep 232. This may be part of a scene representing the *hieros gamos* which was celebrated at the new year.

II/171-two medium arched bistructural harps.

Plate 23, two harpists from Mari. Gypsum statuette. Period II. 171

F.W. Galpin[1] thought the two instruments[2] were horns. Some forty five years later, Duchesne-Guillemin[3] writes 'A Mesopotamian scraper is depicted on a Sumerian statuette from Mari in the Louvre. Two kaunakes-attired musicians hold in their left hand a big, curved, notchy object, rather like a horn, while their right hand still has the hole in which the stick was stuck.' She concludes her article summing up that these were the scraper and its stick, 'a pair of magical instruments . . .' Galpin's assumption that they were horns was a hasty one. In fact horns as instruments are arched only when they come from the arched horns of animals. Other musical horns made from different materials such as wood or copper are straight and tapered because this is more practical for their construction.

The instruments held by the two Mari musicians are curved but are not animal's horns. Furthermore, if we assume that the part closest to their faces is the mouth-piece, the other extremity does not show the typical funnel shape that is expected from a wind instrument. Madame Duchesne-Guillemin's hypothesis was equally hasty in the sense that scrapers which are curved are so because they come from animal's horns. Straight scrapers come from dried, hollowed-out and ribbed oblong calabashes or other gourds such as the South American guiro. There is no logical reason as to why they would have curved a vegetal with great care and attention as it grew whilst it would have been more practical to play of it had it been left straight. The items held by the Mari musicians are certainly hollowed calabashes. There is a parallel with the bushmen of Southern Africa who grow calabashes in various shapes for different purposes. Curves and ridges are induced by domestication.

When the fruit is ready, they open holes at the convex part to gouge out the flesh. The shell is then filled with hot sand.When the calabash is dry, holes are drilled, strings inserted and then secured at the emplacement of the ridges. This is exactly what the Sumerians would have done.

1 The Music of the Sumerians ... *op. cit.*
2 The statuette is at the Musée du Louvre in Paris, (AO17568).
3 IRAQ XLV (1983) 157-

Remains the matter of the holes in the musician's hands to be elucidated. At this early period the plectrum was unknown on vertical items. The reason is that there were not needed because the small number of strings allowed the fingers to reach the strings freely. What the musicians held in the holes of their right hand may have been either jingles or scrapers that were used on the ribs of the harps in conjunction with the playing of its strings.

IIIa/34-arched horizontal harp type a.

Plate 24, steatite vase from Bismaya and detail. Period I. 34

These unique models are the first to show hanging tuning tassels that we see later on angular types of Elamite and Assyrian harps. It is possible that these tuning devices were inherited from the lute which is seen as early as the Uruk period with such implements.

IIIb/27-arched horizontal harp type b.

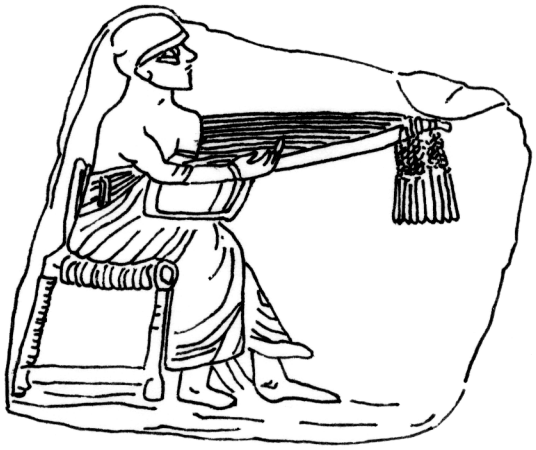


Plate 25, stamped terracotta from Eshnunna (Tell Asmar). Period IV. 27

This type shows hanging tuning tassels and the usage of a plectrum.

IV-33 angular horizontal harp

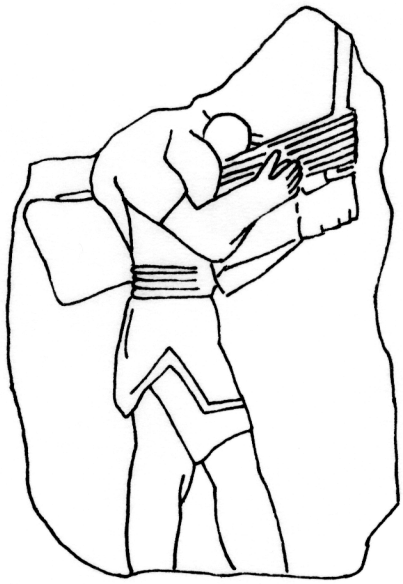


Plate 26, stamped terracotta from Eshnunna (Tell Asmar). Period IV. 33

IV-32 angular horizontal harp

Plate 27, stamped terracotta from Eshnunna (Tell Asmar). Period IV. 32

IV/30- angular horizontal harp.

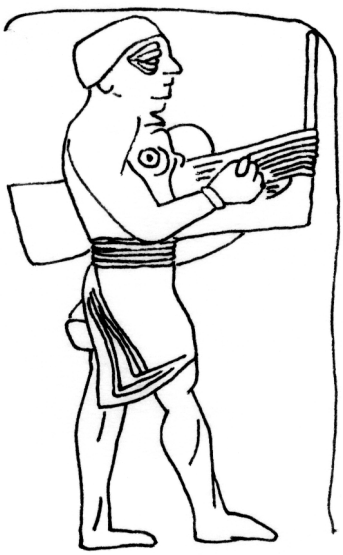


Plate 28, stamped terracotta from Eshnunna (Tell Asmar). Period IV. 30

IV/31- angular horizontal harp.

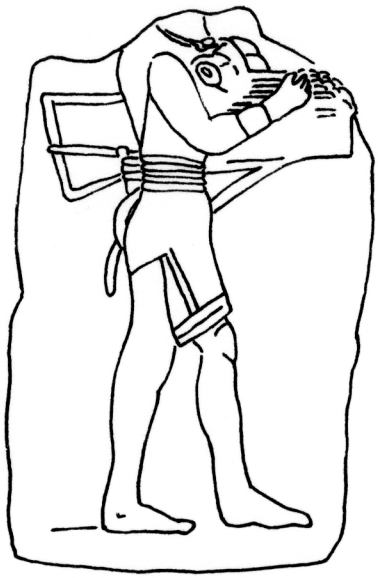


Plate 29, stamped terracotta from Eshnunna (Tell Asmar). Period IV. 31

The four models above are all played by walking soldiers. These instruments do not reveal any hanging tuning tassels but in all cases there is usage of a plectrum. These instruments have a structure which is so similar to that of the vertical angular paradigm that it is possible to assume that they were one and the same instrument, held in two different ways and that in the course of time, slight mutations would have naturally occurred bringing more subtantial structural differences. A strap, for instance, could have been added and it is also conceivable that the plectrum, which in the later Assyrian models resembles more a stick than a plectrum, may have been used to strike the leather soundboard. Thus these instruments could have been both percussion and stringed as was suggested earlier.

IV/176- angular horizontal harp.

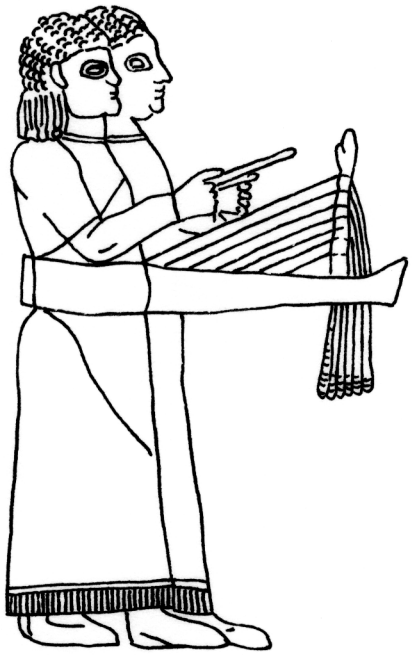


Plate 30, stone relief from Niniveh. Period VI. 176

These later Assyrian instruments are well documented[1]. They are very similar to their vertical models with the principal exception that, in the horizontal type, the yoke usually represents an upright arm and hand whilst the vertical type is a simple horizontal yoke. However, one may speculate that the yoke in the vertical type is phallic, as it was on the horizontal types. Now the Ur archaic sign for arm also expresses force and virility, as would be expected of the horizontal yoke (*uš* = GÌŠ: *išaru*, 'penis'). Both yokes would thus be symbols of force and authority. It is interesting to note that the sign for penis, GÌŠ and the sign for wood, tree, GIŠ are homophones and thus the determinative GÌŠ qualifying the harp could subconsciously evoke force and virility.

These Assyrian instruments show that their soundboards were usually attached to the soundbox by means of rounded pegs, which would have allowed for the replacement of the hide. Details on the yokes show that they were designed to be replaced easily as they were, in all probability, inserted into a mortise and held in position only by the string tension. There is little doubt that the sticks in the hands of the musicians were designed for percussion rather than plucking.

1 T.C.Mitchell, *An Assyrian Stringed Instrument*, in The British Museum YearBook 4. Music and Civilisation, (London, 1980) 33-42.

This would make sense with regards to the military context of the scenes depicted. It is therefore possible to assume that the strings were used sympathetically, rather than directly, or that whilst the right hand struck the soundboard the left one would continue strumming the strings. Alternatively it would stop the vibrations of the strings at appropriate times.

V/14-angular vertical harp.

Plate 31, Elamite seal impression from the royal cemetery at Ur. Period II. 14

V/400- angular vertical harp.

Plate 32, bronze relief from Nihawand, Iran. Period III. 400

V/19- angular vertical harp.

Plate 33, stamped terracotta from Isin Larsa, Iraq. Period IV. 19

The model above is one of the most recorded in the old Babylonian period. These terracotta plaques measured 150 by 100 millimetres on average and were stamped from a mould. It is very likely that their purpose was decorative but perhaps also educational. The subjects depicted were, as above, the vertical harp but also the horizontal type or the lute but other scenes were also reproduced.

In all cases of the period, the instrumentalist is sitting on a portable stool showing a centre-pin and rope which would have adjusted its height. The musicians are all right handed and wear the same type of robe and head-dress. There is no trace of hanging tuning tassels and no plectrum seen thus distinguishing the vertical from the horizontal models. At all times the instrumentalist is equipped with a plectrum or stick. The cross seen on the upper part of the soundbox could have been the equivalent of the concave sided tetragon seen in later Assyrian models. The purpose of these orifices must have been to allow for the replacement of the strings when they broke, as was explained earlier. There are no traces of rounded pegs seen in later Assyrian models holding the leather soundboard.

Thus we assume that the skin covered fully the instrument and was probably stitched or glued at the spine of the soundbox, as is frequently done with ethnic instruments.

V/21- angular vertical harp.

Plate 34, stamped terracotta from Isin Larsa, Iraq. Period IV. 21

V/22- angular vertical harp.

Plate 35, stamped terracotta from Isin Larsa, Iraq. Period IV. 22

V/23- angular vertical harp.

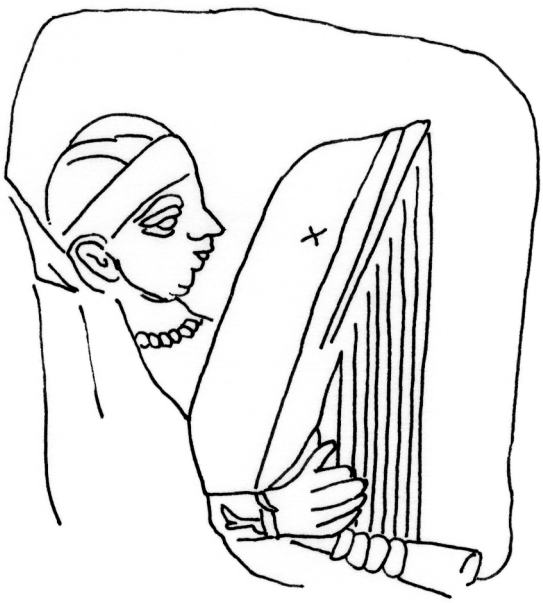


Plate 36, stamped terracotta from Isin Larsa, Iraq. Period IV. 23

V/24- angular vertical harp.

Plate 37, stamped terracotta from Isin Larsa, Iraq. Period IV. 24

V/25- angular vertical harp.

Plate 38, stamped terracotta from Isin Larsa, Iraq. Period IV. 25

V/26- angular vertical harp.

Plate 39, stamped terracotta from Isin Larsa, Iraq. Period IV. 26

V/-74 angular vertical harp.

Plate 40, stamped terracotta from Isin Larsa, Iraq. Period IV. 74

V/6- angular vertical harp.

Plate 41, seal cylinder. Elamite. Period V. 6

The Elamite harps[1] were usually slender types with hanging tuning tassels which differentiated them from Old Babylonian models. The seal above depicts a left handed female musician[2].

1 Porada E., *A Cylinder Seal showing a Harpist* In The British Museum Yearbook 4, Music and Civilisation, (London, 1980) 29-31.

2 With regards to the harp, it is difficult to attest of the right or of the left handedness of a musician on the grounds that the instrument shows a similar picture on both its sides, which is not the case with the lyre and the lute, but it will generally be accepted that when the character faces the left of the scene, then it can be considered that they are left handed. Now in Ancient Egypt, whilst they play the lute right handed, female lyricists players are always depicted left handed.

V/7- angular vertical harp.

Plate 42, seal cylinder from Tell Atchana, Turkey. Period V. 7

V/55- angular vertical harp.

Plate 43, stone slab. Period III. 55

V/53- angular vertical harp.

Plate 44, bronze stand from Curium, Cyprus. Period V. 53

V/12- angular vertical harp.

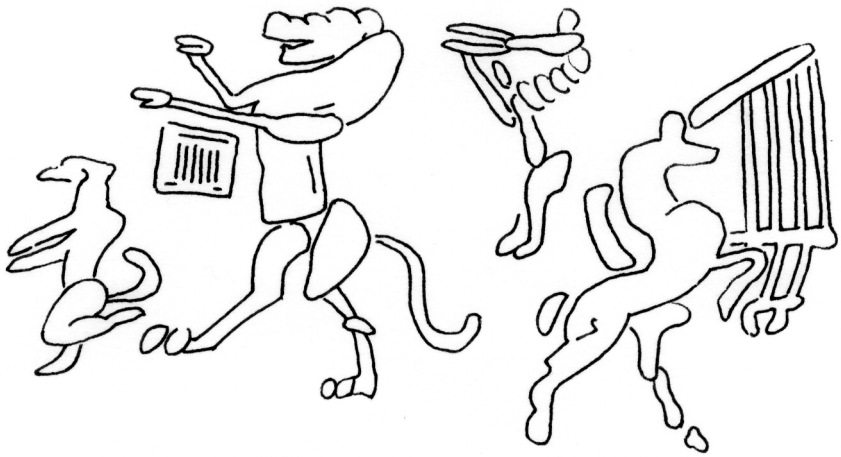


Plate 45, seal cylinder from Susa, Iran. Period VI. 12

V/57- angular vertical harp.

Plate 46, bronze relief from Kirman Shah, Iran. Period VI. 57

V/344- angular vertical harp.

Plate 47, terracotta statuette. Seleucid. Period VII. 344

The scroll at the top of the soundbox of the instrument is typical of the Seleucid period.

V/63- angular vertical harp.

Plate 48, terracotta statuette. Seleucid. Period VII. 63

V/64- angular vertical harp.

Plate 49, terracotta statuette. Seleucid. Period VII. 64

V/65- angular vertical harp.

Plate 50, terracotta statuette. Seleucid. Period VII. 65

V/66- angular vertical harp.

Plate 51, terracotta statuette. Seleucid. Period VII. 66

V/67- angular vertical harp.

Plate 52, terracotta statuette. Seleucid. Period VII. 67

V/68- angular vertical harp.

Plate 53, terracotta statuette. Seleucid. Period VII. 68

V/69- angular vertical harp.

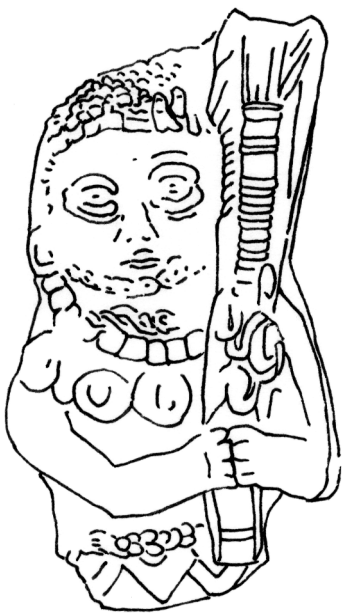


Plate 54, terracotta statuette. Seleucid. Period VII. 69

V/70- angular vertical harp.

Plate 55, terracotta statuette. Seleucid. Period VII. 70

V/71- angular vertical harp.

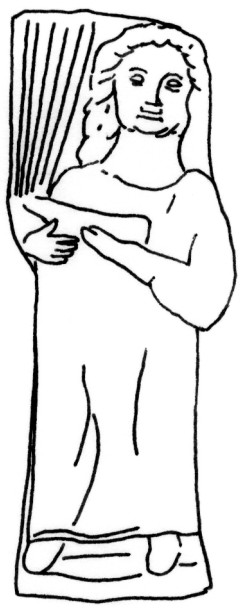


Plate 56, terracotta statuette. Seleucid. Period VII. 71

V/72- angular vertical harp.

Plate 57, terracotta statuette. Seleucid. Period VII. 72

V/73- angular vertical harp.

Plate 58, terracotta statuette. Seleucid. Period VII. 73

V/75- angular vertical harp.

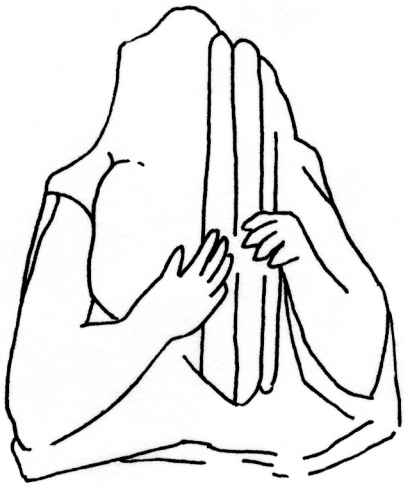


Plate 59, terracotta statuette. Seleucid. Period VII. 75

V/62- angular vertical harp.

Plate 60, terracotta statuette. Seleucid. Period VII. 62

V/380- angular vertical harp.

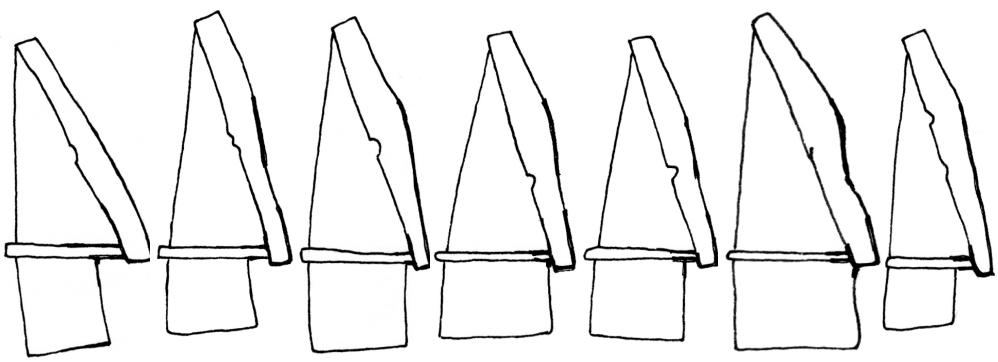
Plate 61, stone relief. Assyrian. Period VI. 380

The great Assyrian harps culminated in the seventh century BC. They were strung in diatonic sets of octaves amounting to 15, 22 and 29 strings. The soundboards were leather fixed to the soundbox by rounded pegs. The strings were tuned by means of hanging tassels. These harps were equipped with the typical concave-sided tetragon orifices on the side of the soundbox, for the purpose of string replacement. There is no evidence of any form of plectrum used with them. The strings were of small section, probably sheep-gut since their number would not have allowed for a greater mass without endangering the structure of the harp. The possibility of a three octave span is the only occurrence in the music of antiquity. This instrument is only associated with the military and there are no known cases of female players of such models.

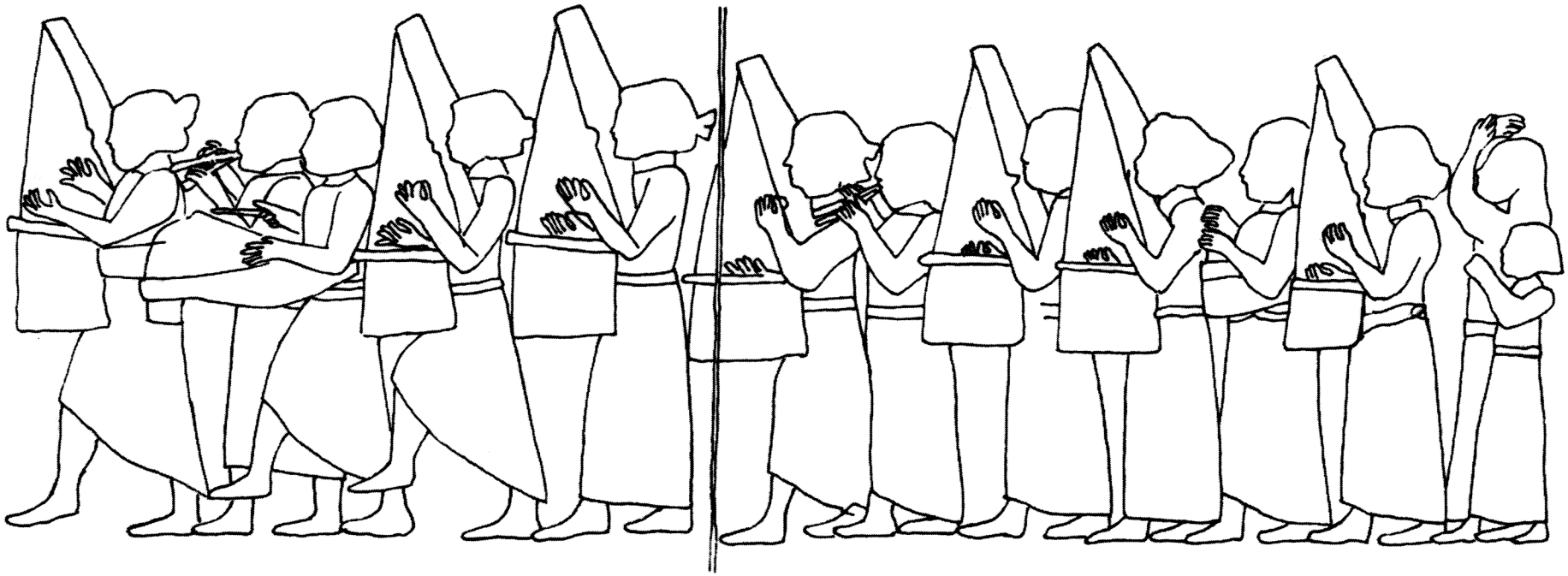
V/59- angular vertical harp.

Plate 62, stone relief from Niniveh. Period VI. 59

Another characteristic of these instruments is that additionally to the stringing holes previously mentioned, almost all of them show a notch about half way on the soundboard as shown below and taken from the seven Elamite harpists of BM 124802. The seven harps below are taken to scale form the original slabs. There is evidence of notches but their position is not rendered with sufficient accuracy to attempt at a reason for them. However it can be hypothesized that they were used as octave separators or that perhaps some of the strings were used to generate harmonics or aliquots and were not to be played *per se*.



Comparison of notches on the Elamite harps in BM 124902.



The seven Elamite harps.The relief was produced in 660-650BC under the reign of King Asurbanipal and is Neo-Assyrian. It was excavated at the South West palace in Kuyunjik (Niniveh) in room XXXIII. It is part of the depiction of the battle of Til-Tuba, by the river Ulai. It was acquired by the British Museum in 1851.

VI/275-Isolated harps.

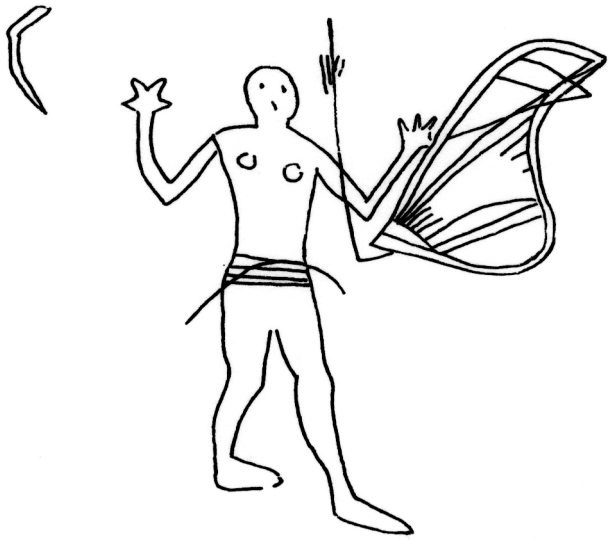


Plate 63, graffito from Megiddo, Period I. 275

VI/51- Isolated harps.

Plate 64, seal cylinder from Usiye near Ana, Iraq. Period V. 51

It is possible that the harp depicted in the seal impression above was a misinterpretation of the lapicide as the protuberances at the side of the vertical part of the instrument make no sense. On the other hand, if the instrument was rotated by 90 degrees to the right, then the tassels would naturally hang downwards and the instrument would then be vertical angular model bearing in mind that the yoke should be shortened and the soundbox expanded.

VI/20- Isolated harps.

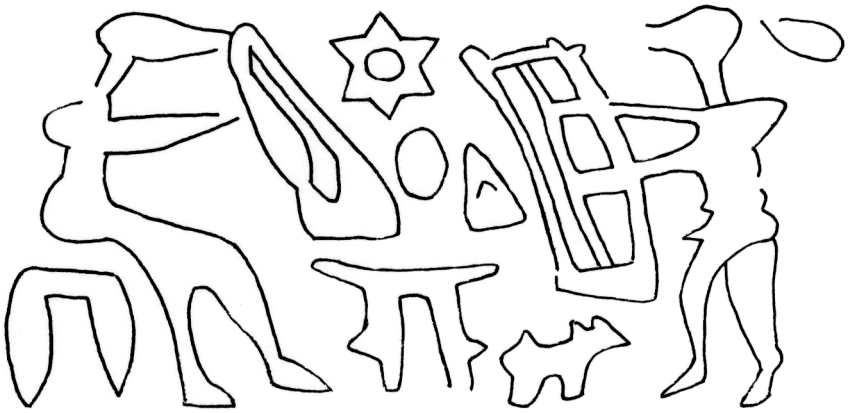


Plate 65, seal cylinder from Hammam near Carchemish. Period I. 20

VI/52- Isolated harps.

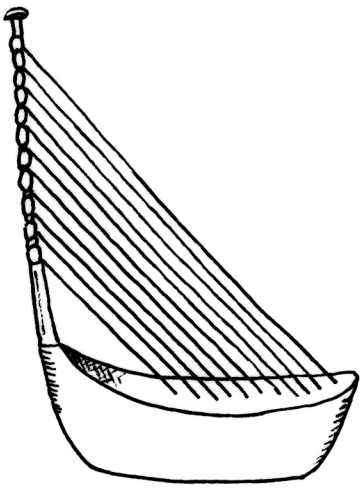


Plate 66, Extant model. Pu Abi's Tomb, Ur. Period II. 52

Queen Pu Abi's harp is one of the most beautiful and isolated models of the whole instrumentarium. What makes it unique is that whilst other extant examples are so rare but figure quite profusely in the iconography, this type has not yet been recorded on any seal or any other iconographic representation. It was fitted with eleven strings which, at this early period, is of great significance. The idea that the golden pegs were used for the sole purpose of evenly spacing the strings and had nothing to do with their tuning, on the grounds that such tuning pegs had not been seen within this period, is no more sensible than to attest that this instrument did not exist at all, since we have no others with which to compare. It is quite possible that rotating tuning pegs were made at that time because the technology to produce them existed. Absence of evidence is not necessarily evidence of absence.

It is possible, on the other hand, that rotative tuning pegs were not to the satisfaction of the musician. Indeed, having experimented with the tuning wedges that were used on the great Ur-lyres, there is little doubt that they are more accurate and practical than the rotative ones on Pu Abi's instrument.

Many readers would have seen a reproduction of this instrument taken from Woolley's original restoration where a soundbox headed by a golden bull's head stands on the soundboard. Woolley was mistaken and the instrument has now been restored to its original status.

VI/259- Isolated harps.

Plate 67, terracotta statuette. Seleucid. Period VII. 259

This instrument is probably the ancestor of the eight string '*ardin*', a Moorish harp[1].

VI/15- Isolated harps.

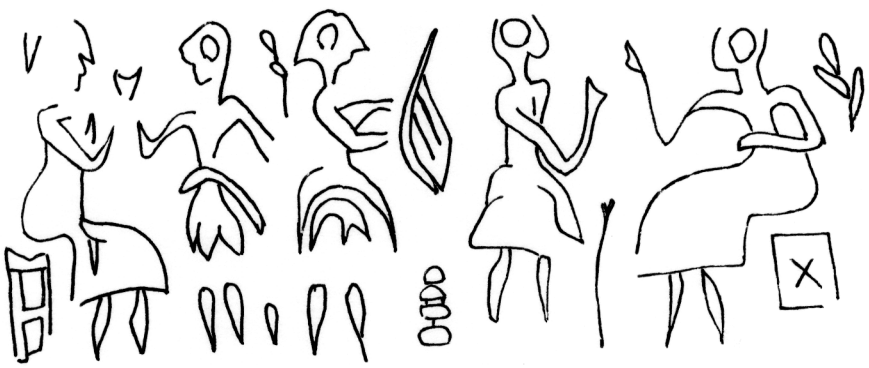


Plate 68, seal impression. Ur, royal cemetery. Period II. 15

1 L. Manniche, *Music and Musicians in Ancient Egypt* (1991) 132, 79.

The balag

(as a stringed instrument)

The balag appears at the Archaic Period of Ur as a Sumerian pictograph and as such is one of the oldest musical instruments depicted in writing, along with the ^{giš}BAN.TUR that we have seen earlier. However whilst BAN is only known to us in its Sumerian Classical form and then only reminiscent of a bow, the sign for balag leaves no doubt that it had been purposely designed to pictorialize such an instrument. However the Classical Sumerian cuneiform sign for the same instrument as well as its Old Babylonian counterpart no longer represents a stringed instrument but a percussion one or possibly two:

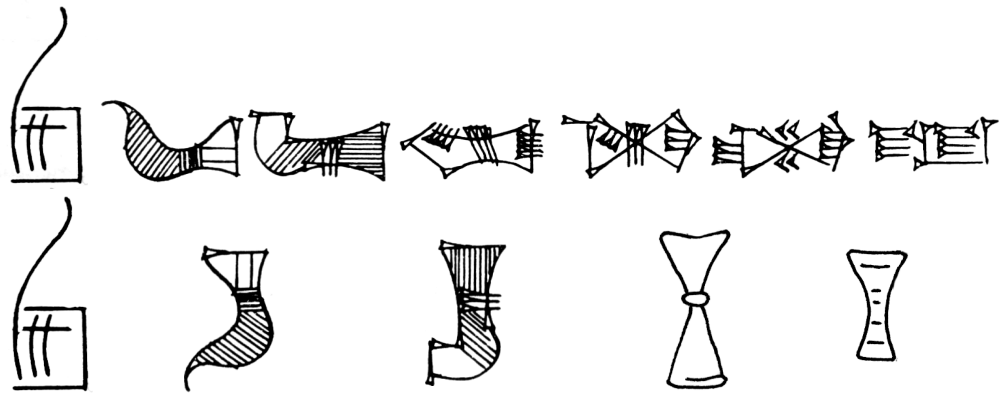


Plate 69, evolution of the sign and of the instrument, respectively.

The first is of the type held under the arm and the other in the hand, the small hour-glass drum, probably the balag.tur 'small drum', for the same reason that we have a 'ban-tur', 'small bow'. The Akkadian and Assyrian names being *balaggu*, *balangu*, *palagga* and *pelaggu* with developments in Aramaic as *palgah* and Syriac *pelagga*.

There is another form, the balag.di, Akkadian *timbûttu* or *timpûttu*. Now, the phonetic value for the sign 'balag' is 'túb' or 'dúb' along with 't\úb' and 'búm' which have survived in the Sanskrit *dundubhi*; the Hindi *dudi* and *budbudika*; the Arabian *dabdab*; the Georgian *dubdabi*; probably the Hungarian *dob* and the Moroccan *duff*; also for obvious reasons of onomatopoesis.

The earliest pictograph for balag shows it was fitted with 2 strings but this quantity may have been only to suggest it was a stringed instrument rather than specify the quantity of its strings.

The item has one upright and a soundbox which would constitute a suitable description for some form of harp, were it not for the

undeniable presence of a bridge which immediately dissociates the balag from the harp family, in favour of that of the lyre.The organology of the balag is attested in a lexical list[1] along with drummable resonators.

The word BALAG(-DI) *balaggu* means both the instrument and a form of chant. However we also have a BALAG-DI = *ṣāriḫu*, singer and *ṣirḫu*, lamentation; balag-nar or nar-balag (balag singer) = TIGI, *tigû*, another unidentified musical instrument. The famous ruler king Gudea is reported as having fashioned a balag[2] which he named 'Lady as exalted as heaven' and another 'ušum-kalam-ma', 'foremost of the land' or 'great dragon of the land[3]'.

Its presence is also noted in a Gudea year name[4] under the pseudonym of Ušumgal-kalama, meaning 'Sumerian dragon'. A text associates the sound of the balag with the croaking of frogs[5] bíl-za-balag-gir$_5$ (BIL-ZA-ZA = frog); with crickets, *ṣarṣaru*[6] and sparrows *aškikītu*[7] . Regarding its shape: a fragmentary Akkadian text mentions the balag as BALAG *šikinšu* ... 'the balag, its form . . .' and also the likeness of the balag with birds'[8] heads; breasts; wings and eyes. Later we find it associated with the shape of the snake, MUŠ *šikinšu*, 'the snake, its form . . .' Some Ur III texts mention offerings to the balag in connection with lunar eclipses[9] and the instrument is also equated to a giant drum with a ram-faced figure standing thereon[10]. The name of balag is also mentioned in connection with the ÁB-BALAG, 'cow of the balag', the Akkadian *lilissu*, the kettle drum.

It is possible that the balag was represented on three occasions. The first instance thereof is used as the acrocratic illustration of the present book.

1 ḪḪVII B, (MSL) 6, 39-63.
2 Statue E iv 12-15.
3 Cylinder A vi 24; vii 24; cyl. B xv 21.
4 SAK 227c.
5 See Salonen (1970), 169 f.
6 Chicago Assyrian Dictionary, under
7 Ibidem, under A/2 *aškikītu*
8 K. 4206 + ... See Cat. C. Bezold IV, 1773 re 81-2-4, 224; and MSL 8/2, 171.
9 Solleberger, 1993 I 297 f., 306 f.
10 Thureau-Dangin, F., RA 16, 121.

B/186-balag

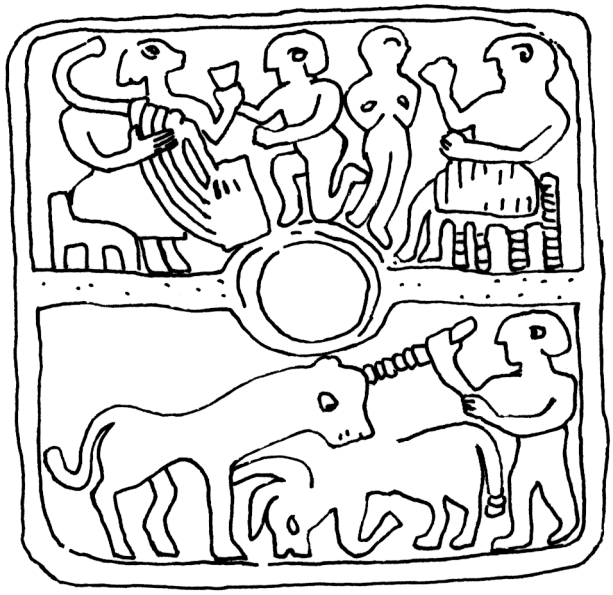


Plate 70, stone stele with possible representation of a balag. Susa, Iran. Period II. 186

B/166-balag

Plate 71, seal impression. Southern Mesopotamia. Period I. 166

B/448-balag

Plate 72, seal impression from Selenkahiye, Syria. Period III. 448

BOOK III

Organology

II - Lyres

Table of contents

Lyres 227
Organology 231
Tonometry 240
Philology 241
Morphological classification 242
Index to periods 242
Iconography 243
Epitome 283
References 286

Table of illustrations

Plates

A number placed at the end of a caption corresponds to the iconographic classification of the author.

Plate 1, bow-harp, arched harp and its evolution into the arched 231
Plate 2, left: harp with open frame. 231
Plate 3, closed frame 232
Plate 4, lyriform arched 232
Plate 5, arched lyre and harp 232
Plate 6, left, boviform lyre type 232
Plate 7, attachment of strings 233
Plate 8, harp or lyre. Megiddo 275 234
Plate 9, evolution from lateral to frontal 234
Plate 10, wooden milk churns mounted on the backs of grazing animals 702 235
Plate 11, large pentachordal boviform 276 236
Plate 12, hypothetical position of bridges on pentatonic boviform 237
Plate 13, hypothetical scaling on a pentatonic boviform 237
Plate 14, hypothetical bridge arrangement of pentatonic 238
Plate 15, large zoomorphic lyre 293 243
Plate 16, large zoomorphic lyre294 243
Plate 17, large standing lyre 297 243
Plate 18, large zoomorphic lyre 296 244
Plate 19, large zoomorphic lyre 288 244
Plate 20, large zoomorphic lyre from Ur 18 244
Plate 21, large zoomorphic lyre 280 245
Plate 22, large zoomorphic lyre 285 245
Plate 23, large zoomorphic lyre 282 245
Plate 24, large zoomorphic lyre. Susa 276 246
Plate 25, large zoomorphic lyre. Ur 37 246
Plate 26, large zoomorphic lyre. Stone relief 291 247
Plate 27, large zoomorphic lyre 277 247
Plate 28, large zoomorphic lyre 302 248
Plate 29, large standing lye from Ischali 329 249
Plate 30, large standing lyre form Ischali 335 249
Plate 31, portable zoomorphic lyre. Seal impression 281 250
Plate 32, portable zoomorphic lyre. Akkadian 300 250
Plate 33, portable zoomorphic lyre 289 251
Plate 34, portable zoomorphic lyre 290 251
Plate 35, portable zoomorphic lyre 298 251

Plate 36, portable zoomorphic lyre 332 252
Plate 37, medium symmetric lyre 334 252
Plate 38, medium symmetric portable lyre 340 253
Plate 39, small portable asymmetric lyre 339 253
Plate 40, small portable asymmetric lyre346 253
Plate 41, small portable asymmetric lyre 284 254
Plate 42, small portable asymmetric lyre 283 254
Plate 43, medium portable asymmetric lyre 28 254
Plate 44, medium asymmetric lyre 343 254
Plate 45, portable asymmetric lyre 330 255
Plate 46, small portable lyre. Akkadian seal cylinder 403 255
Plate 47, small portable arched lyre 378 255
Plate 48, small asymmetric portable lyre from Tell muzan 336 256
Plate 49, medium portable asymmetric 501 256
Plate 50, medium portable asymmetric lyre 502 256
Plate 51, medium portable asymmetric lyre503 257
Plate 52, medium portable asymmetric lyre 504 257
Plate 53, large standing asymmetric lyre 516 257
Plate 54, large portable asymmetric lyre517 258
Plate 55, large portable asymmetric lyre 518 258
Plate 56, large portable asymmetric lyre 519 259
Plate 57, large portable asymmetric Lyre 520 259
Plate 58, large portable asymmetric Lyre 521 259
Plate 59, medium portable asymmetric Lyre 522 259
Plate 60, large portable asymmetric Lyres 523 260
Plate 61, small asymmetric portable lyre 524 260
Plate 62, small portable symmetric lyre 525 260
Table 63, small portable symmetric lyre 526 261
Table 64, large symmetric lyre 527 261
Plate 65, large unusual lyre 528 261
Plate 66, small symmetric portable lyre.Palaikastro 529 262
Plate 67, large portable symmetric lyre. Ayia Triada 530 262
Plate 68, large standing symmetric lyre. Nauplion 531 262
Plate 69, large standing symmetric lyre. Kalamion, Greece 532 263
Plate 70, symmetric lyre of uncertain size. Amyklai 533 263
Plate 71, small portable symmetric lyre. Palaepaphos, Cyprus 534 263
Plate 72, small symmetric portable lyre. Ashdod, Palestine 535 264
Plate 73, small portable symmetric lyre. Kamid el-Loz 504 264
Plate 74, lyre from Tel Batash, Palestine 505 264
Plate 75, medium Portable asymmetric lyre. Megiddo, Palestine 506 265
Plate 76, small symmetric portable lyre. Mount Nerbo 507 265
Plate 77, medium asymmetric lyre. Stamped terracotta 77 265
Plate 78, terracotta model of a boviform lyre 299 266
Plate 79, portable symmetric lyre from a mural at Beni Hassan 333 266
Plate 80, three portable asymmetric lyres from a silver bowl from Cyprus 287 266
Plate 81, Cappadocian symmetric lyre from a haematite seal cylinder 341 267
Plate 82, small portable symmetric lyre from Izmir, Turkey 405 267
Plate 83, portable asymmetric lyre. Carved ivory from Megiddo 286 267
Plate 84, asymmetric portable lyre. Kurion, Cyprus 388 268
Plate 85, small portable symmetric lyre. Ashdod, Palestinbe 536 268
Plate 86, large portable symmetric lyre. Kalorizíki, Cyprus 537 268

Plate 87, small symmetric portable lyre. Vartivouras, Cyprus 538 269
Plate 88, medium portable asymmetric lyre. Syria 542 269
Plate 89, asymmetric portable lyre. Idalion, Cyprus 389 269
Plate 90, portable symmetric lyre on stone relief from Karatepe 331 270
Plate 91, portable symmetric and asymmetric lyres, Zinjirli 76 272
Plate 92, portable symmetric and asymmetric lyres, Karatepe 328 272
Plate 93, portable symmetric arched lyre from Heraklion 375 272
Plate 94, asymmetric lyre from a stamp seal. Palestinian 376 273
Plate 95, small symmetric lyre from an amphora. Cypriot 379 273
Plate 96, small portable symmetric lyre. North-Syrian 508 273
Plate 97, medium asymmetric portable lyre. Phoenicia 509 274
Plate 98, small portable lyre. Tell Keisan, Palestine 510 274
Plate 99, small portable asymmetric lyre. Kuntillet 'Ajrud, Palestine 511 274
Plate 100, symmetric and asymmetric lyres from stone relief. Assyrian 350 275
Plate 101, three asymmetric lyre from stone relief. Assyrian 387 275
Plate 102, portable symmetric lyre from an Egyptian steatite bowl 369 276
Plate 103, portable lyre from a stamp seal. Palestinian 368 276
Plate 104, small symmetric portable lyre. Palestinian 367 276
Plate 105, small portable symmetric bowl lyre from coin. Palestinian 338 277
Plate 106, small bowl lyre. Palestinian 337 277
Plate 107, portable symmetric lyre. Clay statuette from Lattakia, Syria 345 277
Plate 108, medium symmetric portable lyre. Phoenician 512 278
Plate 109, small portable symmetric lyre. Phoenician 513 278
Plate 110, medium portable asymmetric lyre. Aššur, Mesopotamia 514 278
Plate 111, small portable symmetric lyre. Maras, Southern Anatolia 515 279
Plate 112, portable symmetric lyre. Seleucid clay statuette 370 279
Plate 113, symmetric lyre on terracotta statuette from Kish 371 279
Plate 114, portable lyre on clay statuette. Mesopotamian, Tell ed-der 372 280
Plate 115, portable lyre on clay statuette. Mesopotamian, Tell ed-der 29 280
Plate 116, terracotta statuette. Mesopotamian, Tell ed-der 374 280
Plate 117, from terracotta statuette. Mesopotamian, Tell ed-der 43 281
Plate 118, portable from terracotta statuette 39 281
Plate 119, portable lyre on terracotta statuette 377 281
Plate 120, portable lyre from terracotta statuette 384 282
Plate 121, portable lyre from terracotta statuette 382 282
Plate 122, portable lyre from terracotta statuette 383 282
Plate 123, portable lyre from terracotta statuette 385 283
Plate 124, relief of Ashurbanipal 705 285

Organology

The earliest form of lyres stem directly from the primaeval arched harps that were described in the previous chapter.

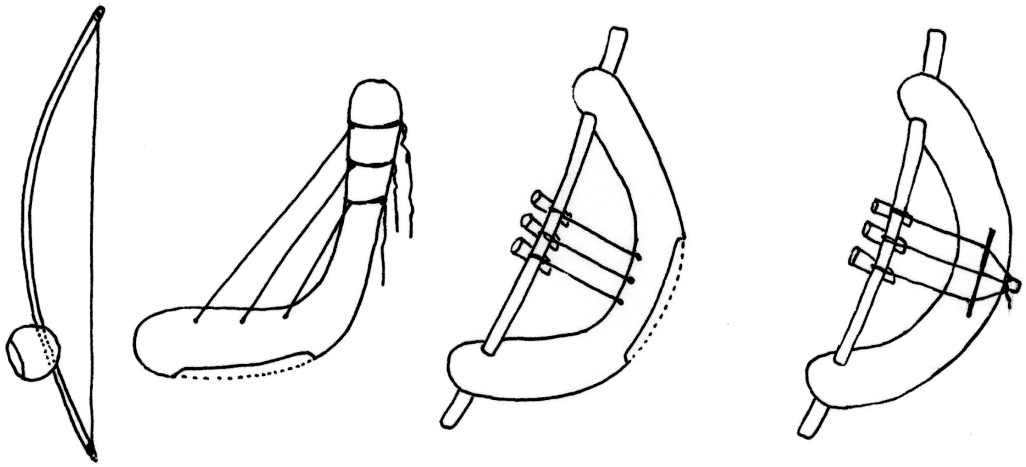


Plate 1, bow-harp, arched harp and its evolution into the arched lyre. (Reconstruction)

They differ from harps firstly in that their strings are placed at right angles in the same plane in relation to that of the harps.

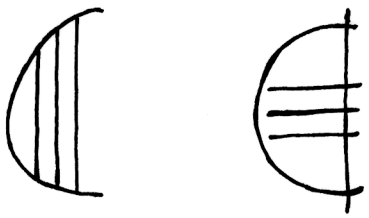


Plate 2, left: harp with open frame, and right, lyre with yoke and strings running at 90 degrees to those of the harp.

Secondly, their strings exert a downward bearing pressure on the soundboard by the means of a bridge which changes the longitudinal direction of the tension of their strings into a vertical one. The 90 degrees shift of the strings results in the addition of a yoke which is attached at both extremities of the bow. This yoke specialises in the hosting of a tuning device. The yoke of the lyre is therefore distinct from the pillar of the closed frame harp type which is seen in the third millennium Cycladic art and which is similar in principle to that of the modern concert harp.

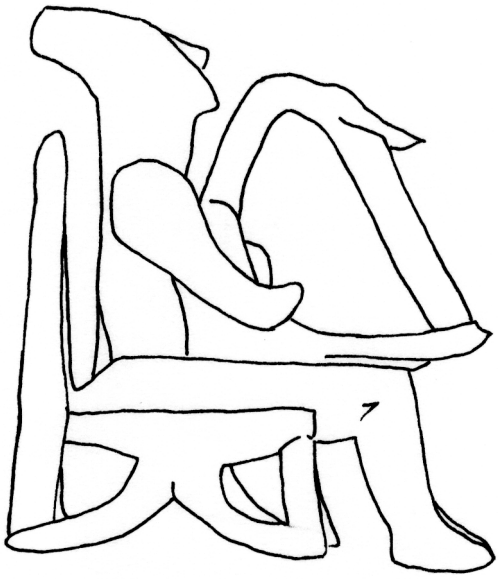


Plate 3, closed frame harp. Cycladic.

It is reasonable to assume that the change of orientation of the strings did not immediately result in the production of the typical lyre but in all probability, of a closed-frame harp.

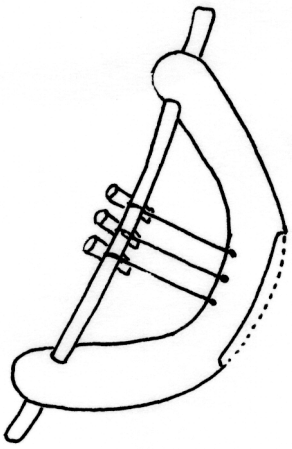


Plate 4, lyriform arched harp. (Reconstruction)

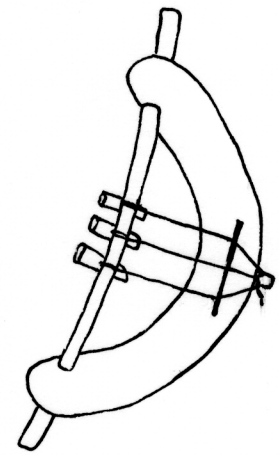


Plate 5, arched lyre. (Reconstruction)

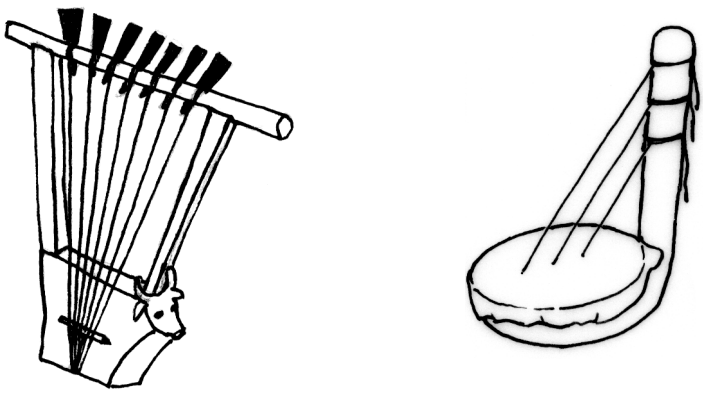


Plate 6, left, boviform lyre type with bridge, right, bistructural harp type without bridge.

In harps the strings pull the soundboard away from the soundbox. With lyres, as the soundboard now runs in the same plane as its strings, their vibrations are transmitted indirectly to it by means of a bridge. As a result the soundboard is pushed in by a downward bearing pressure exerted by the force of the string tension. Henceforth, soundboards become thicker, eventually changing from skin to wood and so allowing for more force to be applied to them. As a result, a considerable increase in intensity and a significant change in sound texture must have resulted. However, these qualities would have been restricted by the tensile limitations and breaking point of the strings. In some cases the strings would be attached to the bottom of the instrument[1] and in others would have been tied directly to the bridge[2] thus exercising both pull-out and push-in forces to a greater or a lesser extent depending on the contact surface common to both bridge and soundboard.

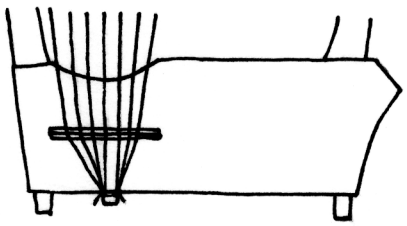


Plate 7, The attachment of the strings to the *zubaiba,* or penis of the bull.

The period at which the lyre distinguishes itself from the harp is difficult to assess because of the lack of iconographic evidence but at least one case shows the possibility of a lyriform harp or a harp-form lyre. The existence of such a hybrid instrument would lead to the assumption that ambiguous types existed in the late fourth millennium and since we have no later recurrences in the iconography it is possible to assume further that the ambiguity ceased with the end of the millennium.

From the late fourth, early third millennium lyres divide in two principal zoomorphic groups, the lateral and the frontal[3] .

1 *Kitab al-musiqi al-Kabir*, the Great Book of Music has the dialectal Arabic term *zobaiba*, that could be a diminutive of *zobb*, *membrum virile*, that could find its sources in the fact that on the large boviform lyres, the strings would be tied up at what would be the bull's penis.

2 This survives with guitars which have both types.

3 Dr. Collon has asymmetric and symmetric for my lateral and frontal. However, certain asymmetric models with Collon are classified as frontal by me on the grounds that they are frontal acrocratic representa tions. Bo Lowergren distinguishes lyres into thick and thin, BASOR 309, February 1998, pp. 41-68.

With the lateral group the soundboxes took the shape of the stylised side-view of a bovid and with the frontal it is the stylised front view of the head of the animal, the acrocratic representation for the whole animal where the head has become *pars pro toto*.

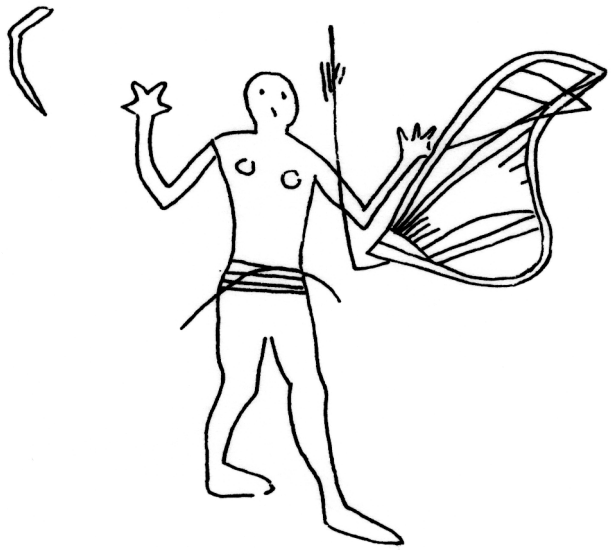


Plate 8, harp or lyre. Graffito from Megiddo. 275

This is precisely what happened when the Egyptian hieroglyph sign for bull changed from lateral to frontal:

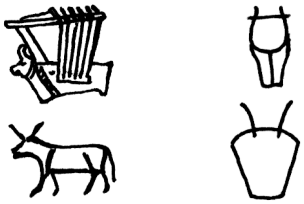


Plate 9, top, lateral lyre and its mutation as a frontal type; below, hieroglyph for cow and its acrocratic representation of the head as *pars pro toto*.

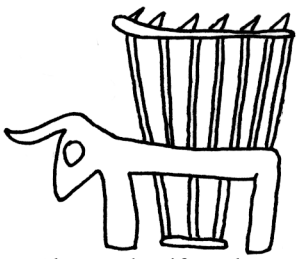


Plate 9a, boviform lyre.

Professor Kilmer's hypothesis that the two uprights, the yoke and strings of the boviform lateral lyre, were the stylisation of milk churns that were placed on cows' backs while they grazed is interesting, especially in the light of the Sumerian terms DUG.ŠAKIR[1], 'churn', which are substituted for the al-gar instrument in an Old Babylonian Hymn to Nanna[2] .

1 DUG = *karpatu*, pot, vase. A determinative which precedes names of earthenware recipients. ŠAKIR = *šakirû, ẓarbabu*, a jar. 2 Inanna Hymn of Iddin-Dagan 204-6 (edited by W.H.P. Römer, *Sumerische Königshymnen der Isin-Zeit* (Leiden 1965) 128 ff.

Plate 10, wooden milk churns mounted on the backs of grazing animals?, left, and mounted on the ground, right. 702

It is assumed that Uruk Period lyres were fitted with the same number of strings as the Uruk Period harp types: usually three but never more than five. Their size would not have allowed for much more but as the lyre differentiated itself further from its origins, especially with the large boviform types of the late fourth, early third millennium, the number of its strings increased to as many as eleven and also fifteen.

The scaling[1] for lyre types present a problem of organology. Whilst with the harp this is determined solely by the length of the strings because the tension and the mass would have been constant parameters on such instruments; the lyres, on the other hand, would have had variable mass and tension to compensate for the fact that all their strings are of approximately the same length. Lyre makers would have had to take into consideration that:

a) Strings of equal length and mass but variable tension, stretched within a parallel infrastructure cannot produce a diatonic scale without serious structural distortions to the instrument and subsequent rupture of the strings.

b) Strings of equal length and tension but variable mass, stretched within a parallel infrastructure cannot produce a harmonious diatonic scale without adequate variations in firstly the gradation of the thickness of the soundboard and secondly the gradation of the volume of the soundbox.

It is impossible to appreciate any variations in the thickness of the soundboards of the instruments of antiquity because in the only four[2] extant models unearthed in the late twenties, by Woolley,

1 The 'scaling' is the drawing, to scale of the speaking length of the strings of a stringed instrument, along with indications of mass, tension and pitch.

2 'Gold lyre' IM 8694, Iraqi Museum. Rashid, 1984, p. 30; 'silver lyre' BM 121199, British Museum, Rashid, p.34; 'plaster lyre' IM 8695, Iraqi Museum, Rashid, 1984, p. 38; 'boat-shaped lyre' UM 30-12-253, University Museum Philadelphia, Rashid, 1984, p. 36.

none has provided us with any remains of soundboard material, due to decay. There is no visual evidence of variations of the volume of the soundbox in any paradigm, from the iconography or textual evidence.

The principles noted above converge towards the musicological deduction that the morphology of the early arched harp shows propension for pentatonism as the strings, which numbered three, four or five naturally approportionated to the curve of the arch of the instrument. Consequently one can assume that with the lyre, in which the strings have shifted by 90 degrees, there would also have been natural approportionating but where the middle string is the shortest and the laterals the longest. Subsequently, whilst the harp would have had a natural hypothetical pentatonic scaling of c-f-a it would have been expected of the lyre to sound as c-a-f, or f-a-c.

To conclude, it is possible to establish a rule that associates arched harps and lyres with pentatonism whilst angular harps naturally associate with diatonism as a result of the right-angled shape of their frame or that it is diatonism which tend the strings to define, as a result of harmonic approportionating, the shape of the right-angled triangle of the vertical harp.

In the section devoted to the Ur text UET VII 126, it has been shown that the strings of the instruments in the Ancient Near East were counted inwardly and that this system was later copied by the Greeks. Possible evidence of a pentatonic tuning arrangement on Uruk zoomorphic lyres with trapezoidal scaling is provided from the seal impression below[1] :

Plate 11, Large pentachordal boviform lyre. 276

The lapicide of the above cylinder took great care in representing the instrument with the strings stretched to the right side of the animal as would be expected for a right handed player. From this we can assume that the shape of the soundbox may not be the result of

1 See BOOK I, Theory, UET VII, 74, right column.

some artistic license pointing at over-emphasising the boviformism of the instrument but would be a reasonably accurate and intentional rendering of what the artist originally saw.

Structurally, the above model would have echoed the principle of the early Sumerian ban.tur, the 'small bow' that we have seen earlier in Book-III, where a gourd was fixed to the bow to serve the purpose of amplification. The same would have happened with the lyre. The instrument consisted of a trapezoidal frame, the Akkadian *apsamikku*. and affixed to the representation of a bovid with a bridge placed on its right side for the transmission of the string vibrations to the soundbox, the body of the animal.

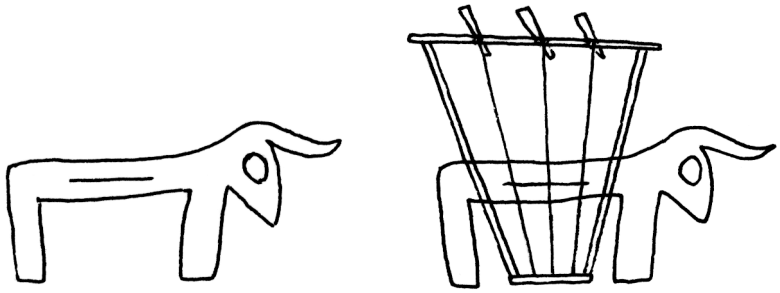


Plate 12, hypothetical position of bridges on pentatonic boviform lyres.

The drawing on the left shows the body of the bovid which would have been made of hollowed wood and the right-hand drawing shows the frame to which it was fixed. The impression shows two uprights and five strings above the animal whilst we only see two uprights and one string below. We could once more speculate about artistic license but an organological answer to this can be given. Firstly, let us assume that what we see is an accurate representation of what the artist saw and that we have two uprights and five strings at the uppermost part of the instrument and two uprights and one string at the lowest.

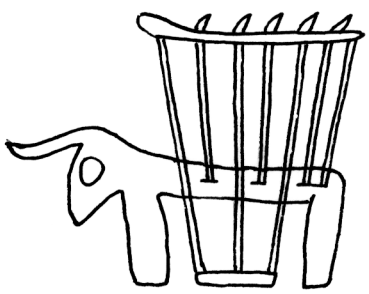
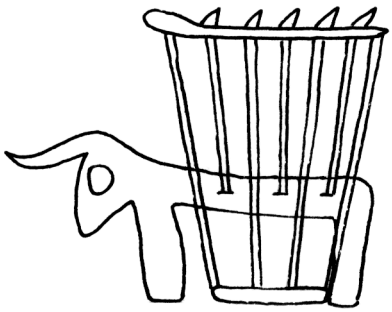


Plate 13, hypothetical scaling on a pentatonic boviform lyre.

The first string close to the left upright is attached to the bridge; the second left string is attached to the bottom of the trapeze; the middle string is attached to the bridge; then we have the right upright and after this, an extension of the yoke with two supplementary strings attached to the bridge. Since the hypothesis of the two supplementary strings attached to the extension of the yoke is a very unlikely one, for reasons of structural improbability, we could extrapolate that the order of the strings would have been: short string; long string; short string; long string; short string, which is a series of five. However, we would have to agree that the artist had left out a bit at the bottom of the trapeze.



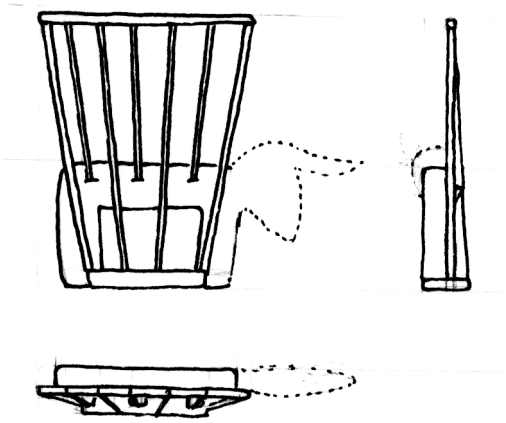
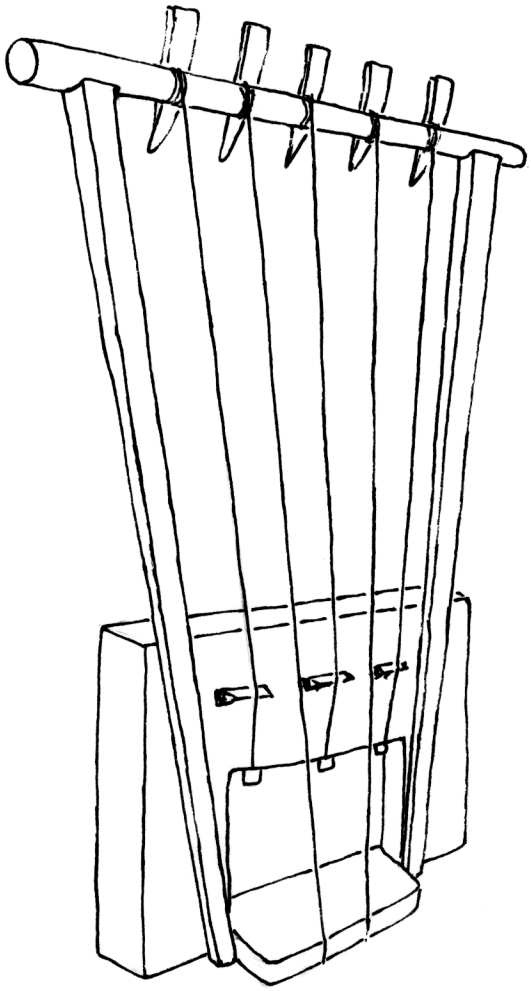


Plate 14, hypothetical bridge arrangement of pentatonic lyre.



Hypothetical structure of the lyre.

This string arrangement in the above hypothesis would establish an order of descending fourths and ascending fifths for the reason that the length of the first string on the left is two thirds of the second and that we would expect the third string to be a fifth above the previous; the fourth string would then be a fourth below and the last a fifth above thus producing f-c-g-da, the archetypical pentatonic arrangement. The first long string giving c; second d; the first short string f; the second g and the third a. This arrangement would demonstrate that early boviform lateral lyres were originally intended for a pentatonic tuning where the strings were arranged in alternate lengths, short and long, descending fourth and ascending fifth. This would explain the reason for the trapezoidal shape of the frame which whilst forbidding any pentatonic or diatonic arrangement in contiguous degrees would nevertheless allow for the same scale in an alternation of fourths and fifths.

Tonometry

The theoretical calculation of the mass[1] for each string in a diatonic pattern for the scale of ascending C major with strings of equal length and tension gives the following figures:

0.2777 - 0.2194 - 0.1735 - 0.1562 - 0.1234 - 0.0977 - 0.0771 - 0.0694

This is calculated from the following scale in Herz:

528 - 594 - 668 - 704 - 792 - 890 - 1002 - 1056

with a constant tension of 77440 Dynes and a constant length of 50 centimetres. Simplified, this gives:

C=28; D=22; E=17; F=16; G=12; A=10; B=8; C=7

In practice, if top C equalling 7 was fitted with a string made of one single length of sheep's gut, bottom C=28 would then have to be made of 4 lengths of the same sheep's gut twisted together and the rest would obviously approportionate as follows:

C=4; D=4; E=3; F=3; G=2; A=2; B=1; C=1

If then the string tension was graded, the mass would be reduced to 3 instead of 4 gauges of strings. However, the application of the above calculations on the larger boviform models would not have produced satisfactory results because as strings get longer the tension also must increase proportionally in order to compensate for another parameter, being the rigidity of the string, if a pleasant tone is to be expected. For example, with a concert piano, where all the steel strings are pulled to approximately the same tension of 80 kilograms, there is usually an increase of about 20% to 30% of the bass despite the fact that a considerable increase in mass is added with copper wire wound around the bass steel core. In simple terms this means it would have been practically impossible for the larger lyre models to be strung in a diatonic scaling of more than five strings or a traditional pentatonic scaling. The resulting music would not have been likened to the sound of thunder, as we read of it in certain astrological omens1 but rather compared to the buzzing of some exhausted bumblebee [2].

1 It is the mass which will allow us to calculate the relative sections of the strings. See Sm. 9 ii [*RA* XVII 175] line 233.

2 These early large boviform lyres would have been the equivalent of our double-bass on account of the length and mass of their strings. Anyone who has played a few notes on the double-bass will have been surprised at the volume being rather low but when it is played within an orchestra, it becomes rather loud, as it is enhanced by the rest of the instruments. This would have been the case with the large boviform types, and it is then possible that they would have been likened them to the sound of thunder, especially if played along with large drums.

The diatonic scaling for smaller lateral or frontal models would not have been problematic in respect of the theoretic scaling given above. However, instruments of the lyre type are certainly not conducive to any form of experimentation with regards to ratios of string lengths. Thus tablet UET VII 74 describing the tuning method of the scale species would not have been devised for a lyre in mind but for an instrument where only string lengths with constant tension and section determined pitch. Any other instrument involving variations of mass and tension would have been excluded.

Philology

If the *sammû* is the harp then what is the lyre? In an article written in 1961[1], Madame Duchesne-Guillemin assumed that the *algar* instrument was none other than the horizontal harp in both their forms, arched[2] and angular [3]. It is true that the *algar* is often mentioned in third millennium texts but only figures in lexical texts from the old Babylonian period onwards. Five literary texts[4] mention both ZÀMÍ and ALGAR as instruments of the temple and thus if the ZÀMÍ /*sammû* is the harp then the ALGAR must be the lyre and, according to Gurney, another term *za(n)naru*, probably a Hattic[5] word would have supplanted the word ALGAR when the new smaller types were introduced, probably from Syria.

The lyre was the most popular of all stringed instrument in antiquity judged by the quantity of iconographic representations, especially with glyptic art. It appears in literature and in mythology which has associated it in whatever circumstantial language with magical or other extraordinary events whenever mankind dealt with the supernatural.

1 JNES 28 (1969) 109-115.
2 Chicago A 195; Rashid, *Mesopotamien*, 56.
3 Louvre, Paris AO 12454; Rashid, *Mesopotamien*, 88.
4 Gudea Cylinder B, translated by Falkenstein in *Sumerishe und Akkadische Hymnen und Gebete*, (1953) 173-4; 2) *Šulgi Hymn* B 162-9 (edited by G.R. Castellino, *Two Šulgi Hymns* (Rome 1972); 3) *Inanna Hymn of Iddin-Dagan* 204-6 (edited by W.H.P. Römer in *Sumerische Königshymnen der Isin-Zeit* (Leiden 1965) 128 ff.; 4) Enki's Journey to Nippur 62-7 (edited by A.Al-Fouadi (University Microfilms, Ann Arbor 70-7772 [1969]); 5) 3NT 386 (unpublished, line 15 quoted in *Assyriological Studies* 16 (1965) 64, line 14 by Al-Fouadi, opus cit. p. 131. The Curse of Agade is excluded (Examentext A, Šurpu III and *ABRT* 55 on the grounds that the dating is uncertain, and also *Babylonian Boundary Stones*, (BBS) 35, rev. 2, late Babylonian.
5 See Lexicon *sub zannaru, zinar* and *kinnaru.*

Morphological Classification of lyres

I	Large zoomorphic and other period I and II
Ia	Portable zoomorphic period I and II
II	Other portable lateral or frontal period I and II
III	Period III lyres
IV	Period IV lyres
V	Period V lyres
VI	Period VI lyres
VII	Period VII lyres

Index to periods (all BC)

Period I	=	Pre 3000
Period II	=	3000-2334
Period III	=	2334-2000
Period IV	=	2000-1500
Period V	=	1500-1000
Period VI	=	1000-500
Period VII	=	500 onward.

Iconography

I/293- large zoomorphic lyre.

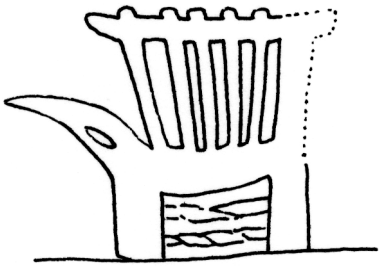


Plate 15, large zoomorphic lyre from Fara. Seal impression. Period I, 293

This unusual zoomorphic lyre, ornated with a possible *Myrmecophaga jubata,* the ant-eater, has four apparent strings and there is evidence of a structure between its legs which may be the bridges referred to in the liminary notes about a hypothetical pentatonic tuning on such instruments. It is equipped with tuning wedges.

I/294-large zoomorphic lyre.

Plate 16, large zoomorphic lyre from Fara. Seal impression. Period I. 294

As was the case with the previous model, there are traces of some structure in between the legs of the animal which may indicate a pentatonic disposition.

I/297-large lyre.

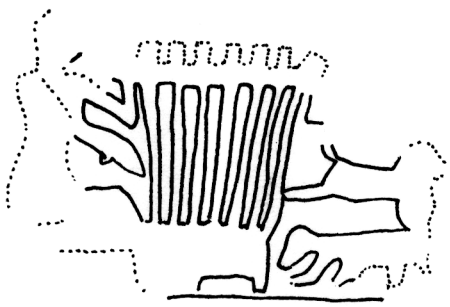


Plate 17, large lyre from Fara. Seal impression. Period II. 297

I/296-large zoomorphic lyre.

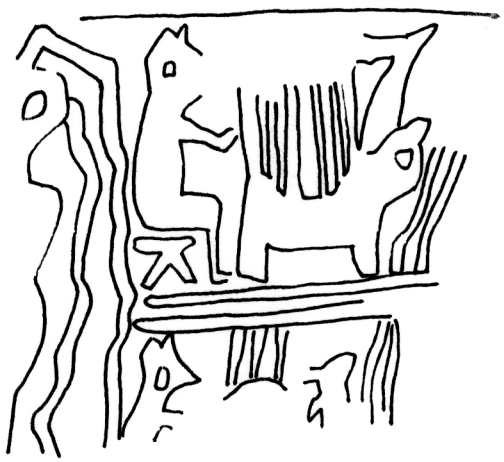


Plate 18, large zoomorphic lyre from Fara. Seal Impression. Period I, 296

I/288-large zoomorphic lyre

Plate 19, large zoomorphic lyre from Nippur. Seal impression. Period II. 288

I/18-large zoomorphic lyre.

Plate 20, large zoomorphic lyre from Ur Graves. Seal cylinder of gold on bitumen. Period II.18

I/280-large zoomorphic lyre.

Plate 21, large zoomorphic lyre. Mesopotamia. Seal impression. Period II. 280

I/285-large zoomorphic lyre.

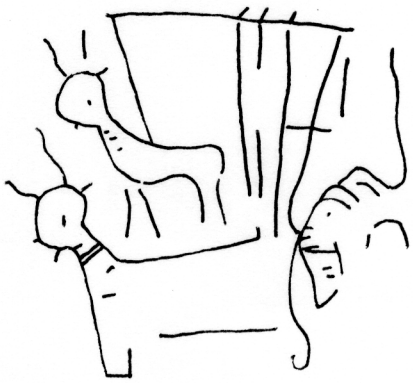


Plate 22, large zoomorphic lyre. Mesopotamia. Seal impression. Period II. 285

I/282-large zoomorphic lyre.

Plate 23, large zoomorphic lyre. Mesopotamian. Seal impression. Period II. 282

I/276-large zoomorphic lyre.

Plate 24, large zoomorphic lyre. Susa, Iran. Seal impression. Period II. 276

I/377-large zoomorphic lyre.

Plate 25, large zoomorphic lyre. Ur graves. Shell plaque on front of lyre. Period II. 37

I/291-large zoomorphic lyre.

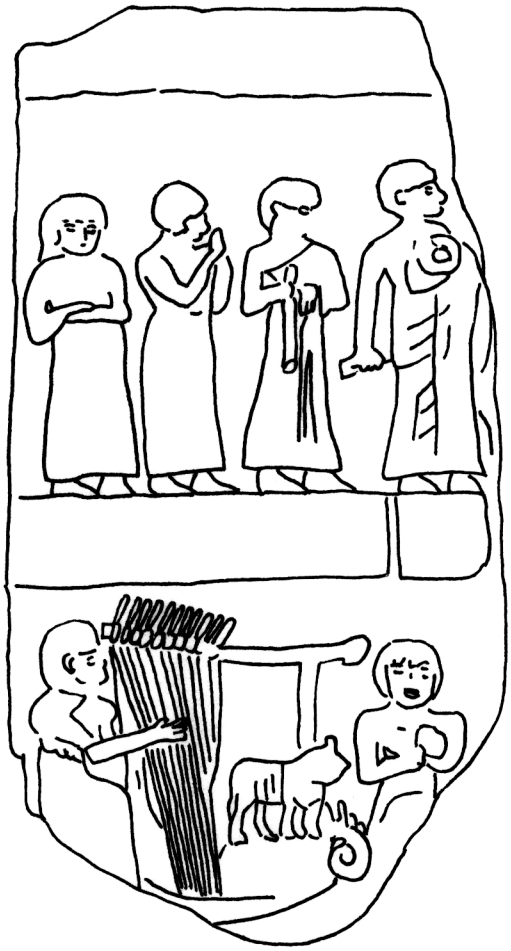


Plate 26, large zoomorphic lyre. Stone relief from Tello. Period II. 291

I/277-large zoomorphic (?) lyre.

Plate 27, large zoomorphic lyre. Akkadian. Seal impression. Period II. 277

I/302-large zoomorphic (?) lyre.

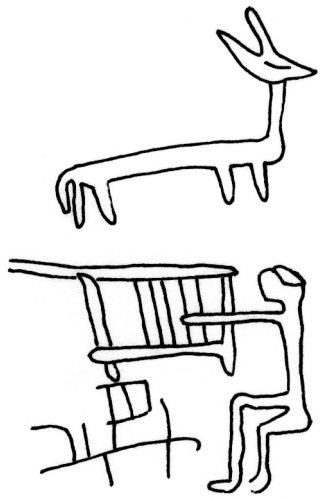


Plate 28, large zoomorphic(?) lyre. Aššur. Seal impression. Period II. 302

The lyres above are the oldest depictions for this type of instrument. The period in which they occur is approximately 3200 to 2200 BC. Their size is large and the earliest models had 3 to 6 strings and so must have been a pentatonic paradigm. Numbers 377 and 277 had 7 or 8 strings. Number 291 probably had 11 strings. This is an indication that the third millennium witnessed the transition between pentatonism and diatonism. There is no indication that the instrument was predominantly played by one sex or the other. Structurally there is evidence that the bridges were placed on the right flank of the animal. It is possible that with the earliest models the animal figures would have been carved from wood and probably hollowed, at least at the emplacement of the soundbox. The string frame would have been added to the flank of the animal, especially with number 302 which seems to demonstrate this point. The evidence of tuning by means of wedges is certain and confirms that these were used from the Uruk period on. The favoured animal was the bull or the cow but the interesting apparition of a hypothetical ant-eater, number 293, or a donkey, number 294, and a gazelle, number 302, indicated that there was no restriction as to the choice of the animal provided it stood on four legs. There is no evidence indicating the purpose for which it was played, with the possible exception of later models where the scenes described include altars or drum-shaped offering tables, numbers 286, 277 and 282, which may associate its use with the sacred rather than the profane.

The only instruments which are played together with these large zoomorphic lyres are percussion, such as the hour glass shaped drum, numbers 277 and 282; jingles, 277 and 377; and clappers, 286. In most cases the lyricist sits for playing: 377, 291, 282, 302, 297, 296, 286 and 277. There is one instance where animals take the places of humans, 377.

I/329-large standing lyre.

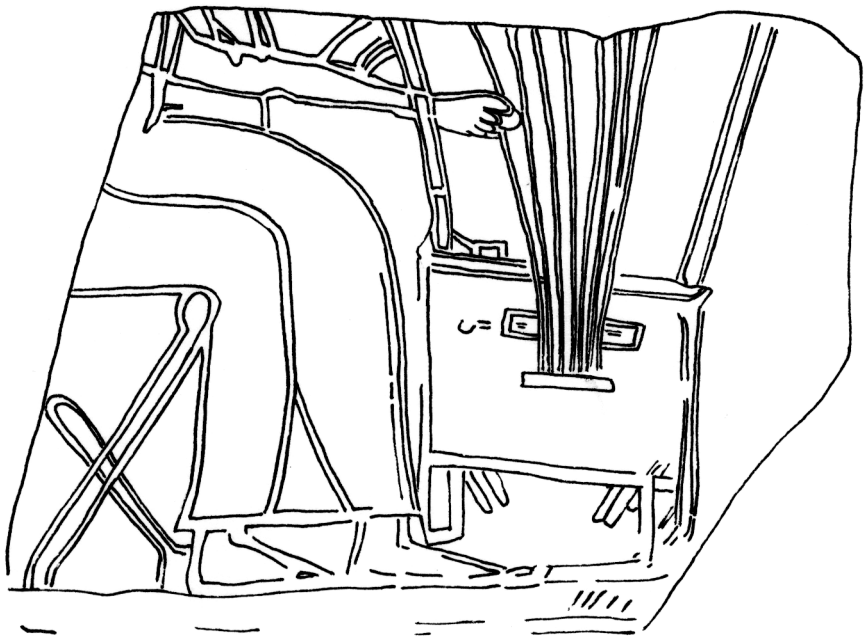


Plate 29, large standing lye from Ischali. Terracotta. Period II. 329

I/335-large standing lyre.

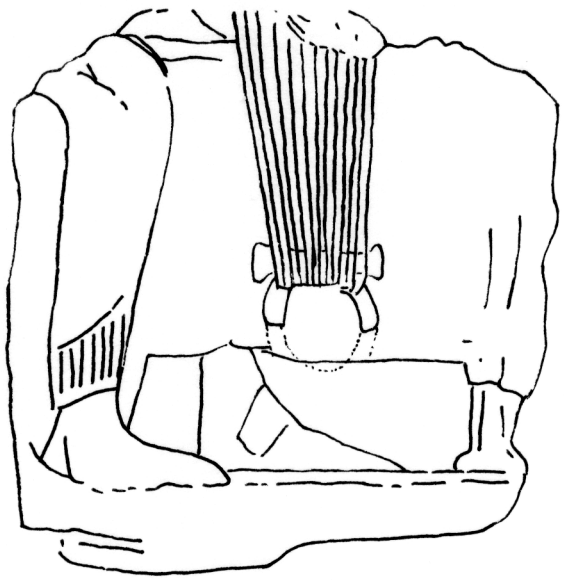


Plate 30, large standing lyre form Ischali. Stone relief. Period II. 335

The two models above, may be fragmentary but they contain essential details regarding the structure of the bridges. Number 329 shows a tail-piece on which the strings are attached and then pass over a bridge. With number 335 it seems that it is a rope that holds the strings which itself is attached to some protuberance at the bottom of the soundbox. The bridges in both cases are made on the same principle. It is probable that number 329 was played with a plectrum.

Ia/281-portable zoomorphic lyre.

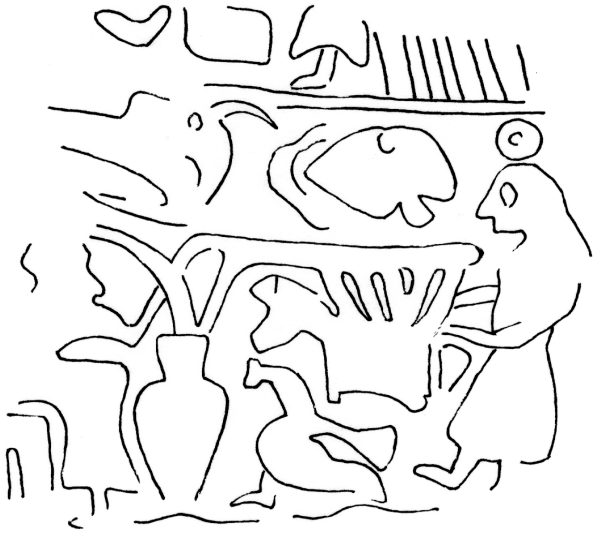


Plate 31, portable zoomorphic lyre. Seal impression. Southern Mesopotamian. Period I. 281

It is possible that the above lyricist was female. This hypothesis results from the observation that later in ancient Egypt female lyricists are always depicted playing left handed for reasons unknown. This seems to be restricted to lyres as there is no evidence of left-handed playing with lutes. It is obviously impossible to determine this on other instruments. However, number 290 shows a left handed male.

Ia/300-portable zoomorphic lyre.

Plate 32, portable zoomorphic lyre. Akkadian. Seal impression. Period II. 300

Ia/289-portable zoomorphic lyre.

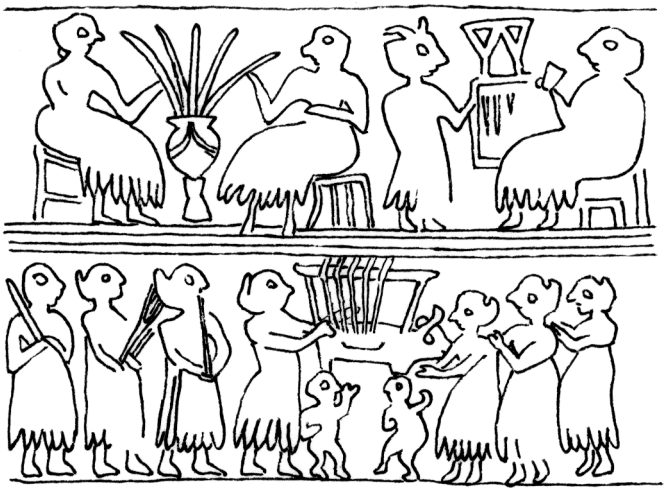


Plate 33, portable zoomorphic lyre. Ur. Lapis lazuli seal. Period II. 289

It is a possibility that the two little dwarfs dancing under the lyre above were in fact lutanists as I explain in the chapter on the lute.

Ia/290-portable zoomorphic lyre.

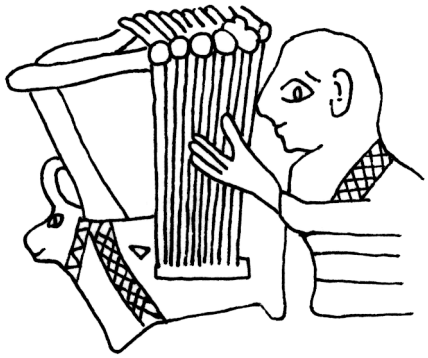


Plate 34, portable zoomorphic lyre. Ur. Plaque, the Ur standard. Period II. 290

Ia/298-portable zoomorphic lyre.

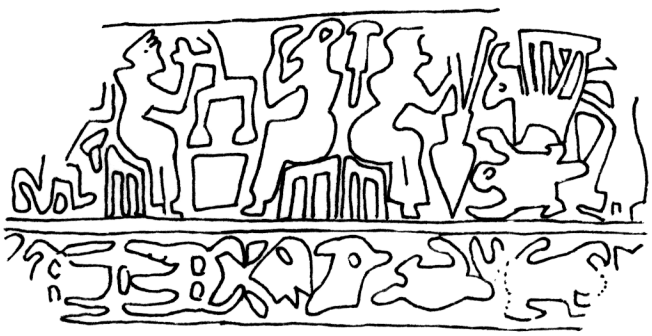


Plate 35, portable zoomorphic lyre. Seal impression. Fara. Period II. 298

Ia/332-portable zoomorphic lyre.

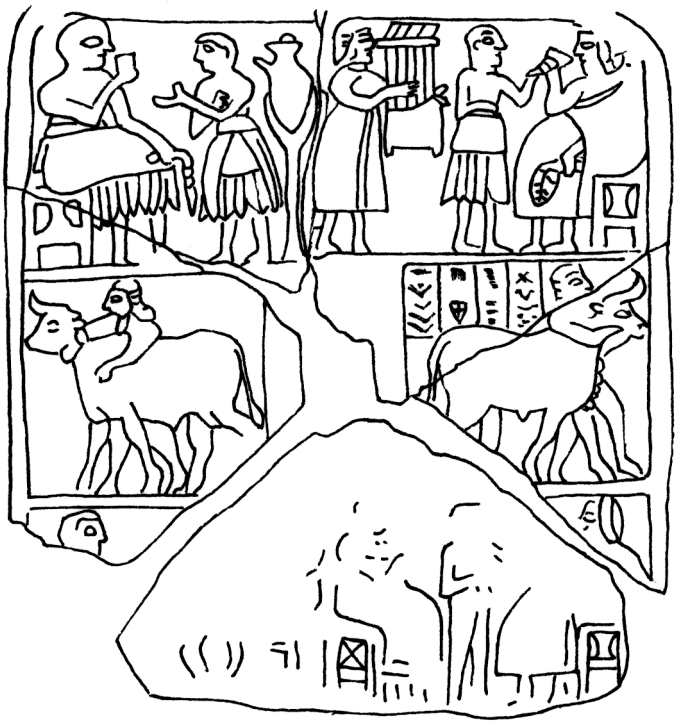


Plate 36, portable zoomorphic lyre. Stone stele. Nippur, temple of Inanna. Period II. 332

Of the six models above four display a trapezoidal scaling, numbers 298, 281, 300 and 284, whilst the two remaining have a parallel one, 332 and 290. In all six representations the playing of the instrument accompanied the libations. Note that lyre number 290 is equipped with a shoulder strap. The small triangle at the left corner between the bridge and the neck of the animal has not yet been explained.

VII/334-medium symmetric portable lyre.

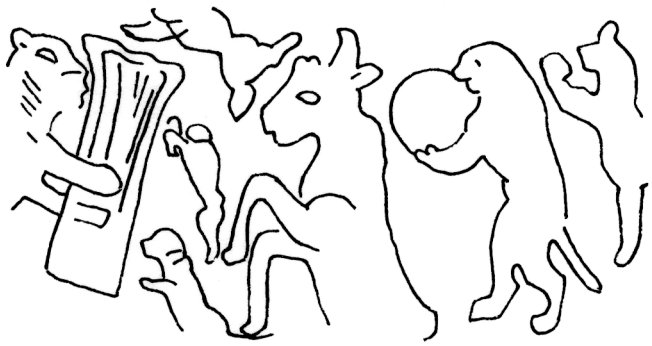


Plate 37, medium symmetric lyre from Tell Halaf. Stone relief. Period VII. 334

II/340-medium symmetric portable lyre.

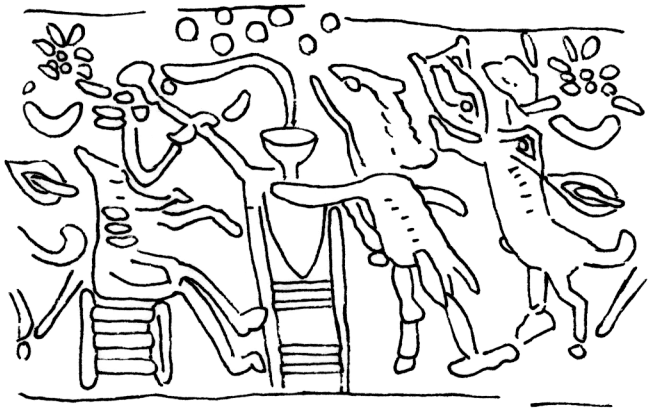


Plate 38, medium symmetric portable lyre. Mesopotamian. Seal cylinder. Period II. 340

II/339-medium asymmetric portable lyre.

Plate 39, small portable asymmetric lyre. Mesopotamian. Seal impression. Period II. 339

II/346-small asymmetric portable lyre.

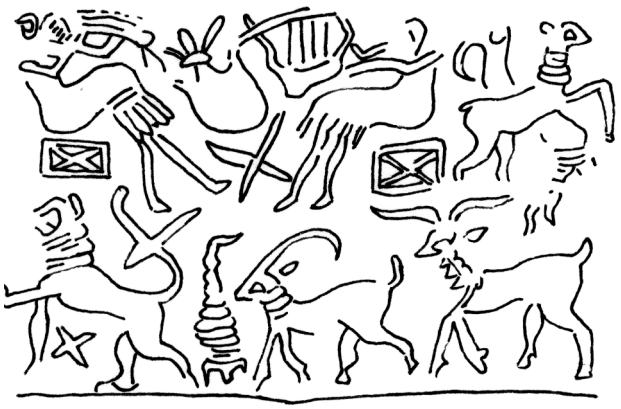


Plate 40, small portable asymmetric lyre. Olyum Hüyük, Anatolia. Seal impression. Period II. 346

II/284-small portable asymmetric lyre.

Plate 41, small portable asymmetric lyre. Syrian. Seal impression. Period II. 284

II/283-small portable asymmetric lyre.

Plate 42, small portable asymmetric lyre. Mesopotamian. Seal impression. Period II. 283

II/Y28-medium portable asymmetric lyre.

Plate 43, medium portable asymmetric lyre. Seal impression. Period I. 28

III/343-portable asymmetric lyre.

Plate 44, medium asymmetric lyre. Akkadian. Seal impression from serpentine cylinder. Period III. 343

III/330-portable asymmetric lyre.

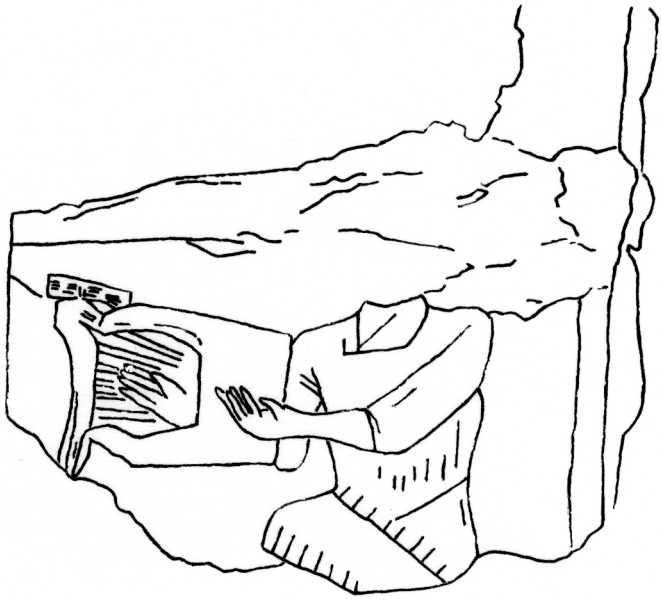


Plate 45, portable asymmetric lyre from Ischali. Terracotta. Period III. 330

III/406-small portable symmetric lyre.

Plate 46, small portable lyre. Akkadian seal cylinder of grey stone with inclusions. Period III. 403

III/378-small portable arched lyre.

Plate 47, small portable arched lyre. Cyprus (?) Period III. 378

III/336-small portable asymmetric lyre.

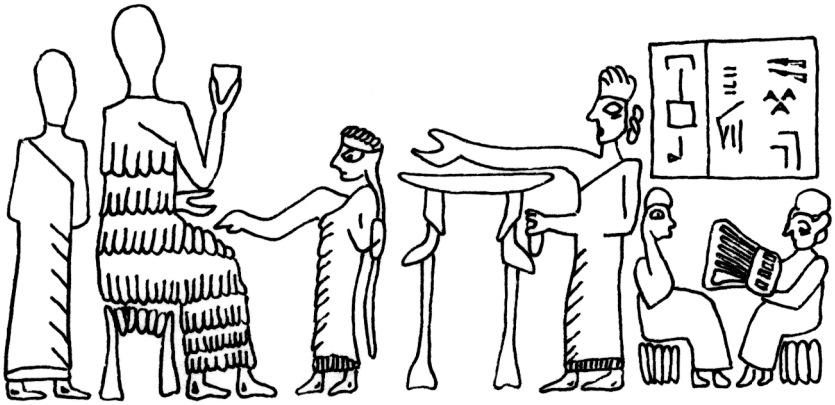


Plate 48, small asymmetric portable lyre from Tell muzan Hafariat. Period III. 336

III/501, medium portable asymmetric lyre.

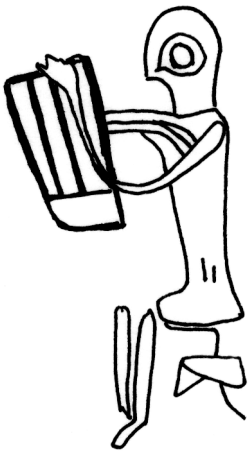


Plate 49, medium portable asymmetric lyre, Mesopotamia or Syria. Period III. 501

III/502-Medium portable asymmetric lyre.

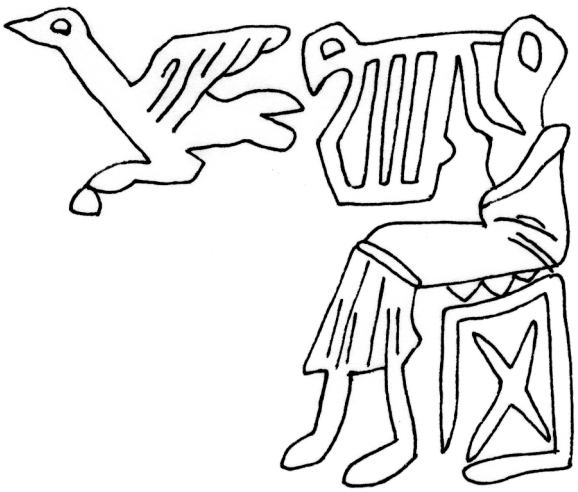


Plate 50, medium portable asymmetric lyre from Olyum Hüyük, Anatolia. Period III. 502

IV/503-Medium portable asymmetric lyre.

Plate 51, Medium portable asymmetric Lyre. Syria-Cappadocia. Period IV. 503

IV-504-medium asymmetric portable lyre.

Plate 52. Medium portable asymmetric Lyre. North Syria. Period IV. 504

IV/516-Large asymmetric standing lyre.

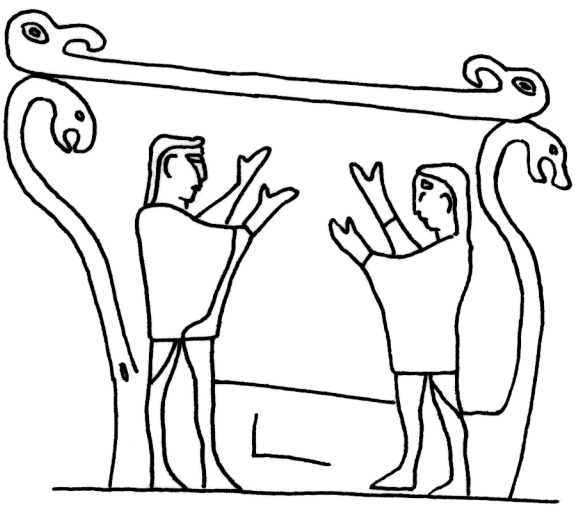


Plate 53. Large standing asymmetric lyre. Inandik. Period IV. 516

IV/517-large portable asymmetric lyre.

Plate 54. Large portable asymmetric Lyre. Inandik. Period IV. 517]

IV/518-large portable asymmetric lyre.

Plate 55. Large portable asymmetric lyre. Inandik. Period IV. 518

IV/519-Large portable asymmetric lyre.

Plate 56. Large portable asymmetric lyre. Inandik. Period IV. 519

IV/520-Large portable asymmetric lyre.

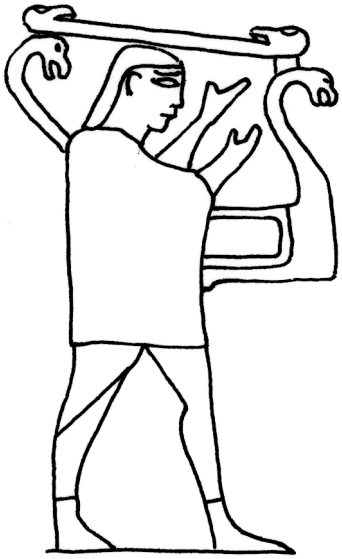


Plate 57. Large portable asymmetric Lyre. Inandik. Period IV. 520

IV/521-large portable asymmetric lyre.

Plate 58. Large portable asymmetric Lyre. Inandik. Period IV. 521

IV/522-medium portable asymmetric lyre.

Plate 59. Medium portable asymmetric Lyre. Period IV. 522

V-523-Large portable asymmetric lyres.

Plate 60. Large portable asymmetric Lyres. Anatolian. Period V. 523

IV/524-small portable asymmetric lyre.

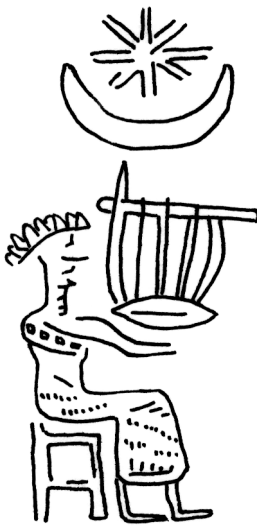


Plate 61. Small asymmetric portable lyre. Kültepe, Anatolia. Period IV. 524

IV/525-small portable symmetric lyre.

Plate 62. Small portable symmetric lyre. Kültepe, Anatolia. Period IV. 525

IV/526-small portable symmetric lyre.

Table 63. Small portable symmetric Lyre. Kültepe, Anatolia. Period IV. 526

IV/527-large and unusual symmetric lyre.

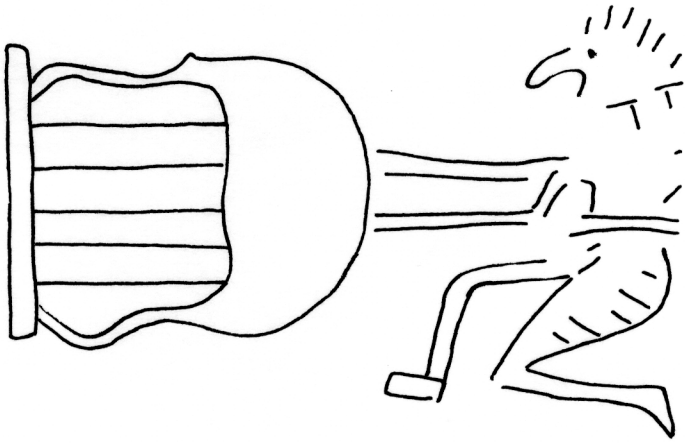


Table 64. Large symmetric lyre. Tarsus, Anatolia. Period IV. 527

IV/528-large unusual symmetric lyre.

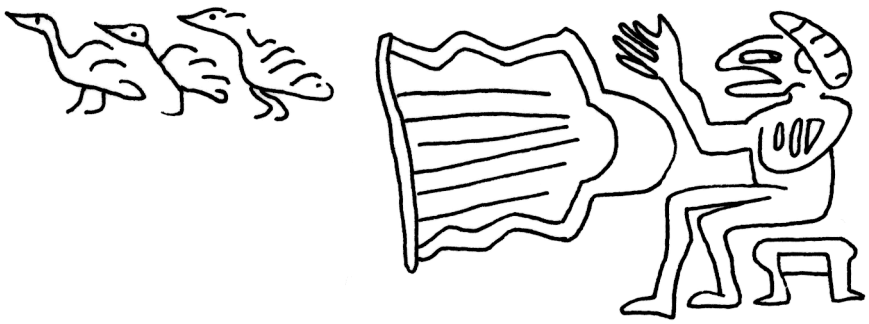


Plate 65. Large unusual lyre. Mardin (?), South-East Turkey. Period IV. 528

VI/529- small symmetric lyre.

Plate 66. Small symmetric portable Lyre. Palaikastro, Crete. Period V. 529

V/530-Large portable symmetric lyre.

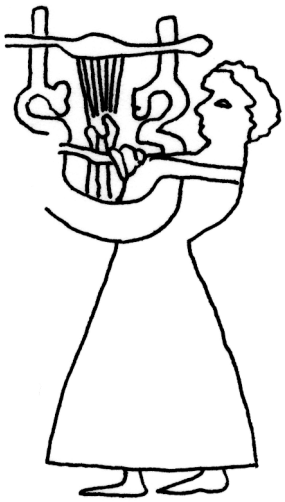


Plate 67. Large portable symmetric lyre. Ayia Triada, Crete. Period V. 530

V/531-large standing symmetric lyre.

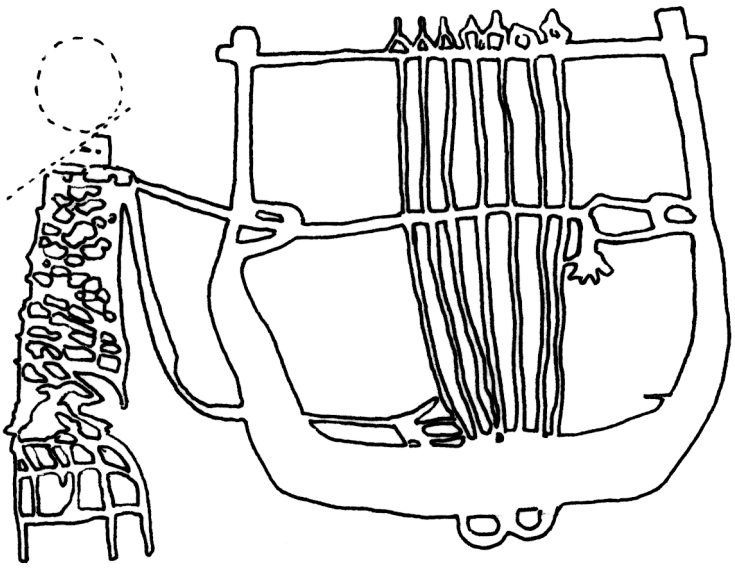


Plate 68. Large standing symmetric lyre. Nauplion, Greece. Period V. 531

V/532-Large symmetric standing lyre.

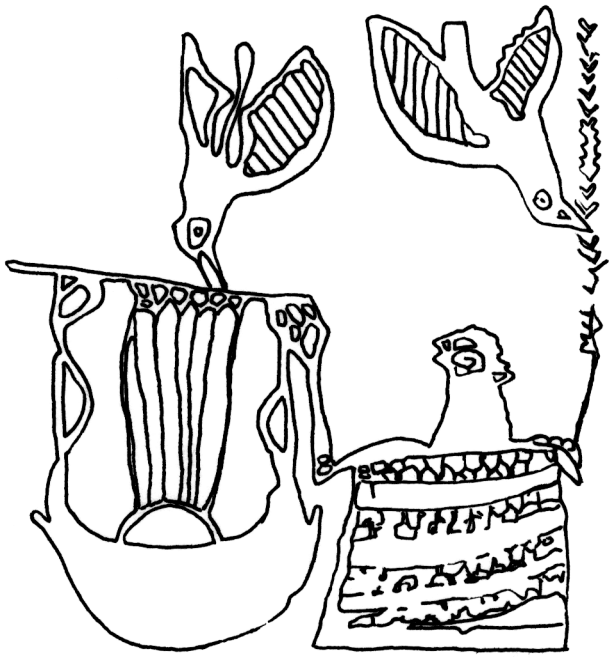


Plate 69. Large standing symmetric lyre. Kalamion, Greece. Period V. 532

V/533-symmetric lyre.

Plate 70. Symmetric lyre of uncertain size. Amyklai, Greece. Period V. 533

VI/534. Small portable symmetric lyre.

Plate 71. Small portable symmetric lyre. Palaepaphos, Cyprus. Period VI. 534

VI/535-small summetric portable lyre.

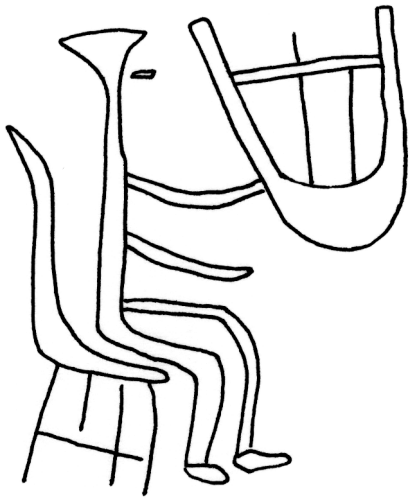


Plate 72. Small symmetric portable Lyre. Ashdod, Palestine. Period VI. 535

IV-504-small portable symmetric lyre.

Plate 73. Small portable symmetric Lyre. Kamid el-Loz, Phoenicia. Period IV. 504

V/505-symmetric lyre.

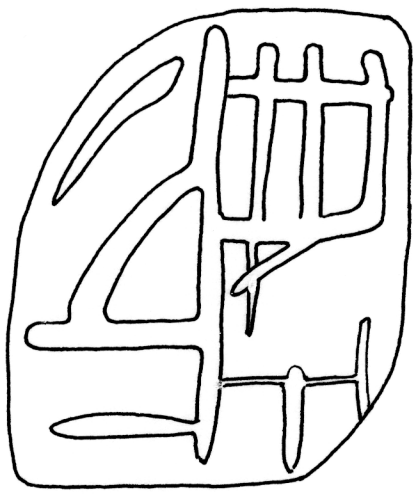


Plate 74. Lyre from Tel Batash, Palestine. Period V. 505

V/506-medium asymmetric portable lyre.

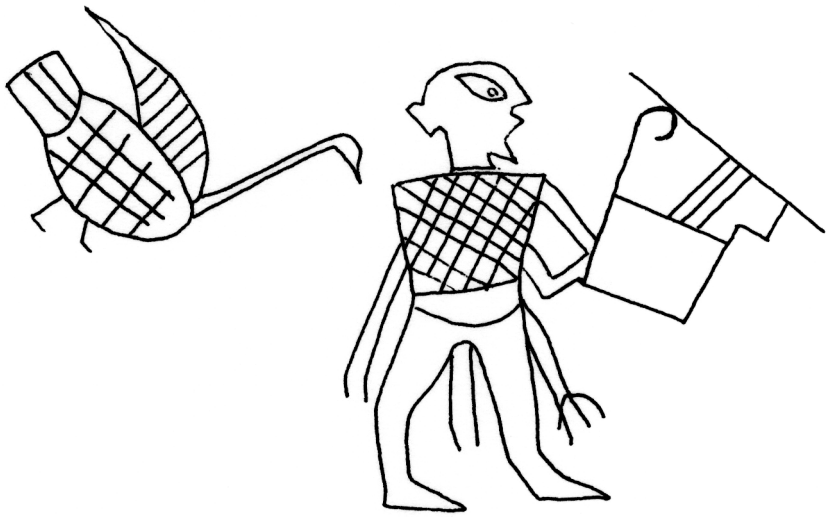


Plate 75. Medium Portable asymmetric Lyre. Megiddo, Palestine. Period V. 506

VI/507-smal portable symmetric (?) lyre.

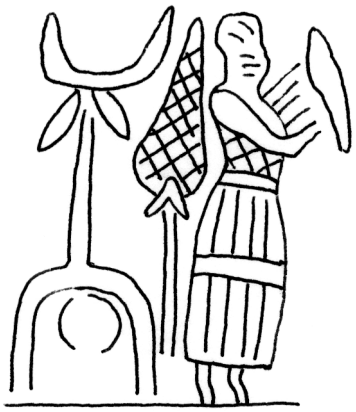


Plate 76. Small symmetric portable Lyre. Mount Nerbo, Transjordan. Period VI. 507

IV/77-medium asymmetric lyre

Plate 77, medium asymmetric lyre. Stamped terracotta. Babylon, Mesopotamia. Period IV. 77

IV/299-boviform terracotta harp.

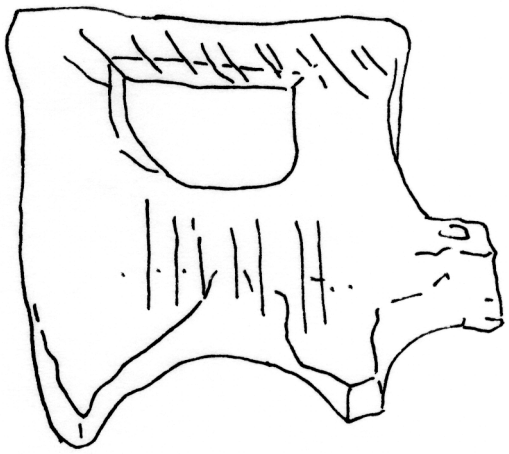


Plate 78, terracotta model of a boviform lyre. Nippur. Period IV. 299

IV/333-portable symmetric lyre.

Plate 79, portable symmetric lyre from a mural at Beni Hassan, Egypt. Period IV. 333

IV/287-portable asymmetric lyres.

Plate 80, Three portable asymmetric lyres from a silver bowl from Cyprus. Period IV. 287

IV/341-small symmetric lyre.

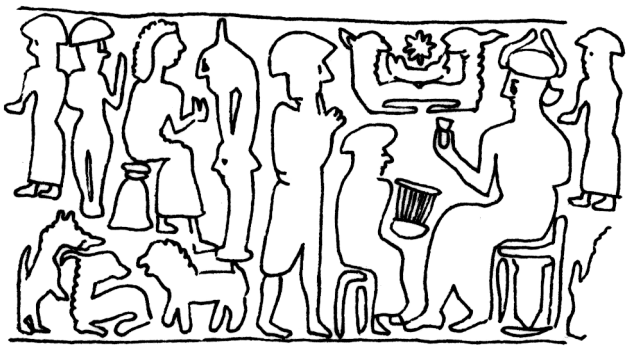


Plate 81, Cappadocian symmetric lyre from a haematite seal cylinder. Period IV. 341

IV/405-small symmetric lyre.

Plate 82, small portable symmetric lyre from a cylinder bought at Izmir in Turkey. Period IV. 405

V/Y286-portable asymmetric lyre.

Plate 83, portable asymmetric lyre. Carved ivory from Megiddo. Period V. 286

VII/388-portable asymmetric lyre.

Plate 84, asymmetric portable lyre. Kurion, Cyprus. Silver bowl. Period VII. 388

VI/536-small portable symmetric lyre.

Plate 85. Small portable symmetric Lyre. Ashdod, Palestine. Period VI. 536

VI/537-large symmetric portable lyre.

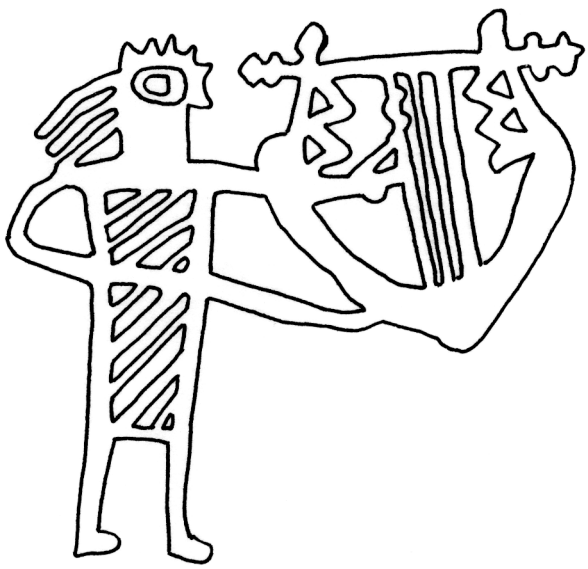


Plate 86. Large portable symmetric Lyre. Kaloriziki, Cyprus. Period VI. 537

VI/538-small portable symmetric lyre.

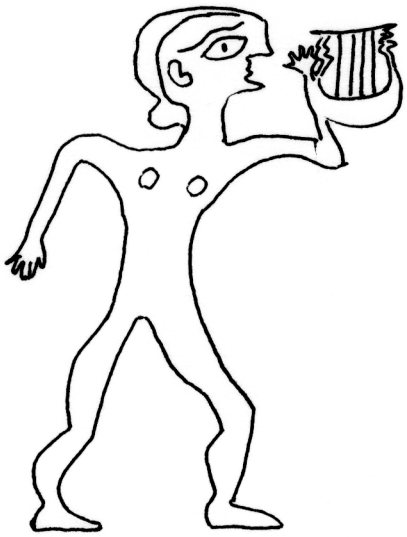


Plate 87. Small symmetric portable Lyre. Vartivouras, Cyprus. Period VI. 538

VI/542-medium portable asymmetric lyre.

Plate 88. Medium portable asymmetric Lyre. Syrian. Period VI. 542

VII/389-portable asymmetric lyre.

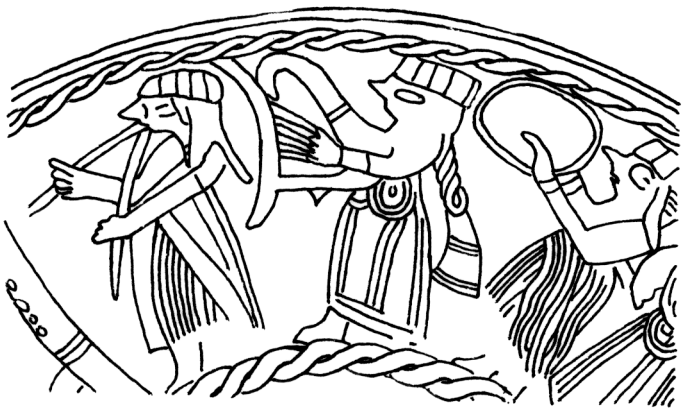


Plate 89, asymmetric portable lyre. From Idalion, Cyprus. Silver bowl. Period VII. 389

V/331-portable symmetric lyre.

Plate 90, portable symmetric lyre on stone relief from Karatepe. Period V. 331

One of the great Hittite spring festivals seems to be depicted in the above scene. This feast, called *purulliyas*, probably from the Hattian '*purulli*' meaning 'of the earth' with the genitive Hittite suffix, was of such importance that king Mursilis II, who ruled from 1321 to 1295 BC, interrupted one of his campaigns to return to Hattusas, the capital city, to celebrate. '*When spring came round, because, although I had celebrated the purulli festival in honour of the weather god of Zippalanda, I had not yet celebrated the purulli festival - the great festival - in the hesti-house in honour of Lilwani, I came up to Hattusas and celebrated the purulli festival - the great festival - in the hesti-house.*'

This celebration included the re-enactment of the fight between he god and the mythological dragon *Illuyankas*, the purpose of which being to re-invigorate the earth after winter. The chthonic character of the festival is made further evident in the light that the goddess *Lilwani* was a goddess of the earth.

When the king was to celebrate in person, the ceremony was meticulously organised and the order of the ceremony was described in the minutest details. There are many fragments of tablets describing such ceremonies and others such as the festival of the cold weather; the month; the gate-house; the *huwasi*-stone; several gods and principally of the *andahshum*-plant, in honour of a number of gods and celebrated in spring. Sacrifices are described in great length as well as the foods eaten. The following exerps will illustrate the style of the texts:

'The king and queen come out of the halentuwa-house. Two palace servants and one member of the bodyguard walk in front of the king but the lords, the (rest of) the palace servants and the bodyguard walk behind the king. The 'jesters' play the arkammi1 ; the huhupal; the galgaturi (three musical instruments) behind and in front of the king . . . Other 'jesters' wearing motley garments stand beyond the king; they hold up their hands and turn round in their places . . .

The king and queen go into the temple of Zababa. They kneel once before the spear; the jester speaks, the herald calls . . .

The king and queen sit down on the throne. The palace-servant bring in the cloth of the golden spear and the 'lituus'. He gives the cloth of the golden spear to the king, but he puts the 'lituus' by the throne on the right of the king.

Two palace-servants bring the king and the queen water for the hands from a jar of gold . . . The king and queen wash their hands. The chief of the palace servants gives them a cloth and they wipe their hands. Two palace servants place a knee-cloth for the king and the queen. The verger walking in front, the 'table-men' step forward. The verger walks in front and shows the king's sons to their seats. The verger goes outside, walks in front of the chief cooks and the chief cooks step forward. The verger again goes outside and walks in front of the chief cooks, and the
chief cooks step forward. The verger again goes outside, walks in front of the 'pure-priest, the lord of Hatti, and the god's mother of Halki', and shows them their seats. The master of ceremonies goes inside and announces the king. They bring forth the Ishtar instruments.

The king says, 'let them bring them forth!' The master of ceremonies goes outside to the courtyard and says to the verger, 'music, music!' The singers pick up the Ishtar instruments. The verger walking in front, the singers bring the 'Ishtar instruments' in and take up their position. The cooks place ready dishes of water and meat; they distribute the cold fat. The verger goes in front (of various dignitaries) and show them to their seats (one text mentions the 'overseers of the meal'). The dishes are distributed. After the dishes have been distributed . . . they give Marnuwan (a drink) to the assembly. The king then flings off the cloth (presumably that which covers the dishes). If he flings it to the palace-servants who are kneeling (there), those palace-servants take it, but if he flings it to the bodyguards who are kneeling, the bodyguards take it, and they give it to the table-men. (At this point there was presumably a ceremonial meal, but not one single text refers explicitly to it.) The king makes a sign with his eyes and the sweeper sweeps the ground. (after this follows the sacrifices)'.

VII/76-portable symmetric and asymmetric lyres.

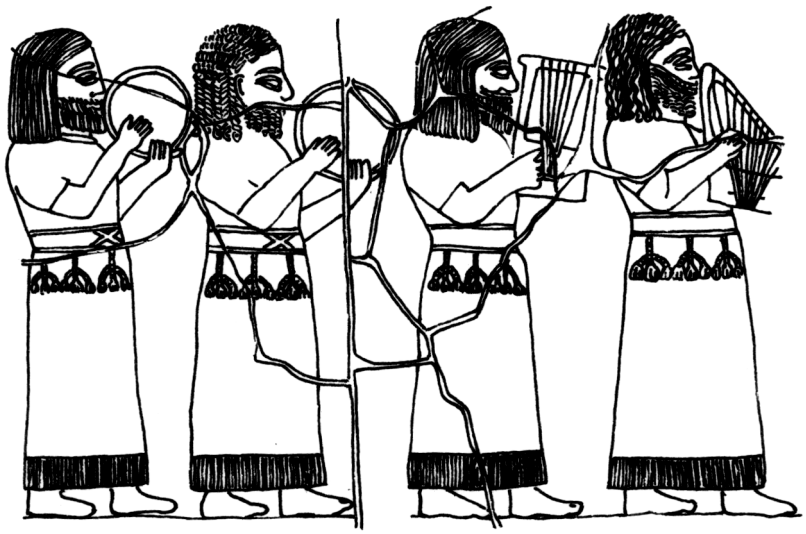


Plate 91, portable symmetric and asymmetric lyres from an orthostat at Zinjirli. Period VII. 76

During period VI, it is to be noted that both symmetric and asymmetric lyres are played together.

VII/328-portable symmetric and asymmetric lyres.

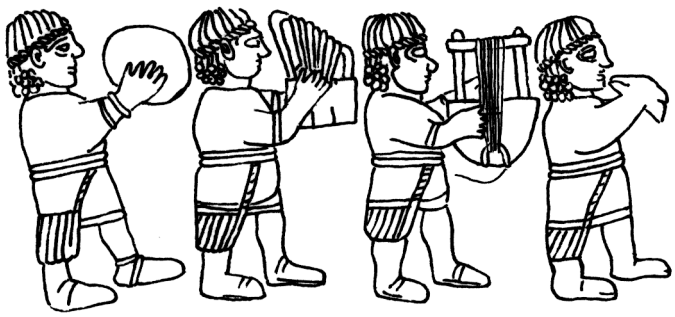


Plate 92, portable symmetric and asymmetric lyres from a stone relief at Karatepe. Period VII. 328

VI/375-portable symmetric arched lyre.

Plate 93, portable symmetric arched lyre from Heraklion, Crete. Bronze statuette. Period VI. 375

VI/376-asymmetric lyre.

Plate 94, asymmetric lyre from a stamp seal. Palestinian. Period VI. 376

VI/379-small symmetric lyre.

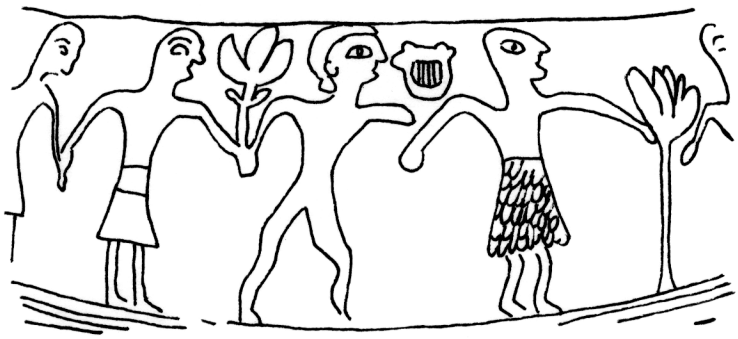


Plate 95, small symmetric lyre from an amphora. Cypriot. Period VI. 379

VI/508-small portable symmetric lyre.

Plate 96. Small portable symmetric Lyre. North-Syrian (?). Period VI. 508

VII/509-medium portable asymmetric lyre

Plate 97. Medium asymmetric portable Lyre. Phoenicia. Period VII. 509

VII/510-medium portable lyre.

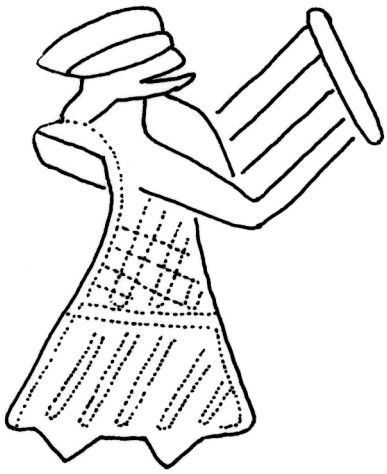


Plate 98. Small portable Lyre. Tell Keisan, Palestine. Period VII. 510

VII/511-small portable asymmetric lyre.

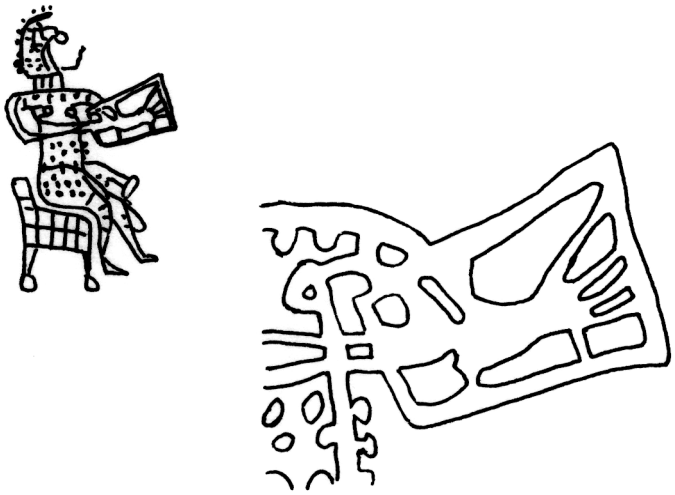


Plate 99. Small portable asymmetric Lyre. Kuntillet 'Ajrud, Palestine. Period VII. 511

VI/350-symmetric and asymmetric lyres.

Plate 100, symmetric and asymmetric lyres from stone relief. Assyrian. Period VI. 350

VI/387-asymmetric lyres.

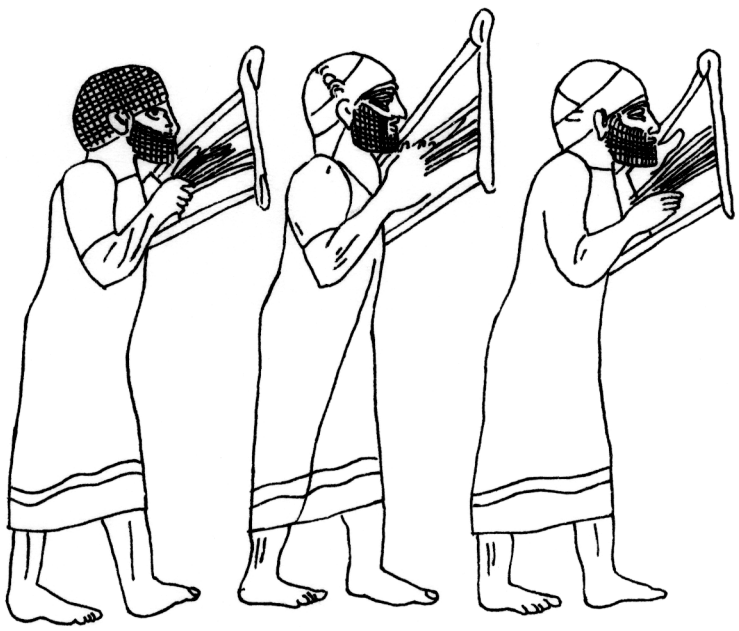


Plate 101, three asymmetric lyre from stone relief. Assyrian. Period VI. 387

VII/369-portable symmetric lyre.

Plate 102, portable symmetric lyre from an Egyptian steatite bowl. Period VII. 369

VII/368-portable lyre.

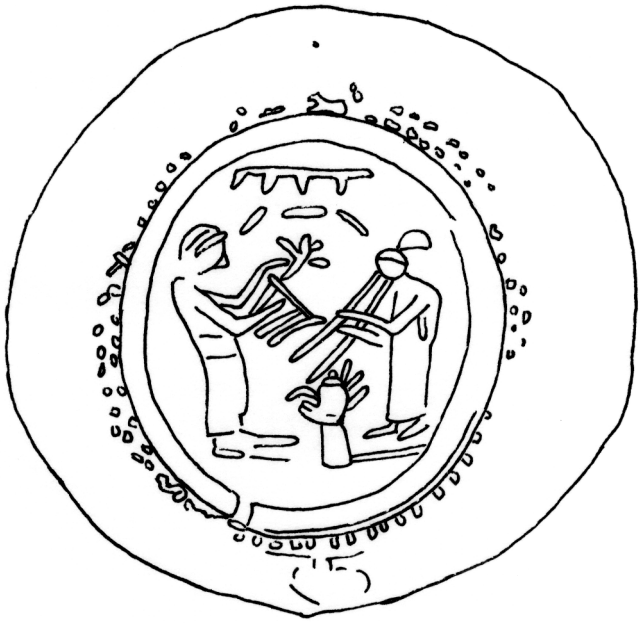


Plate 103, portable lyre from a stamp seal. Palestinian. Period VII. 368

VII/367-small portable lyre

Plate 104, small symmetric portable lyre. Palestinian. Period VII. 367

VII/338-small bowl lyre with sack corpus (?).

Plate 105, small portable symmetric bowl lyre from coin. Palestinian. Period VII. 338

VII/337-small bowl lyre with sack corpus.

Plate 106, small bowl lyre with sack corpus.(?) Palestinian. Period VII. 337

VII/345-symmetric lyre.

Plate 107, portable symmetric lyre. Clay statuette from Lattakia, Syria. Period VII. 345

VII/512-medium symmetric portable lyre.

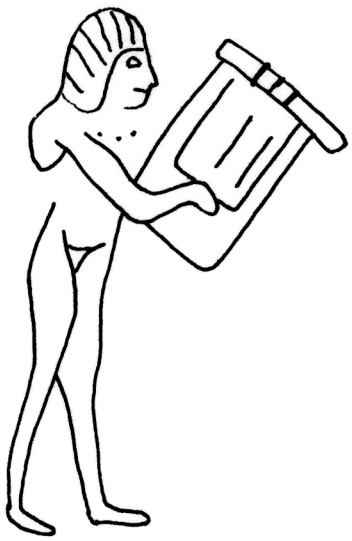


Plate 108. Medium symmetric portable Lyre. Phoenician. Period VII. 512

VII/513-small portable symmetric lyre.

Plate 109. Small portable symmetric Lyre. Phoenician. Period VII. 513

VII/514-medium portable asymmetric lyre.

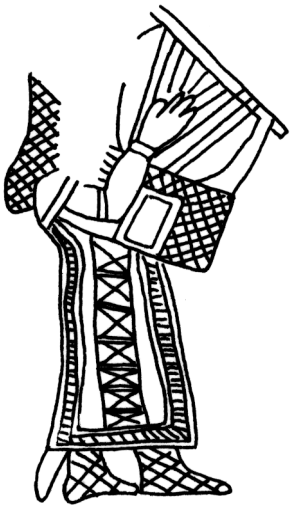


Plate 110. Medium portable asymmetric Lyre. Aššur, Mesopotamia. Period VII. 514

VII/515-small portable symmetric lyre.

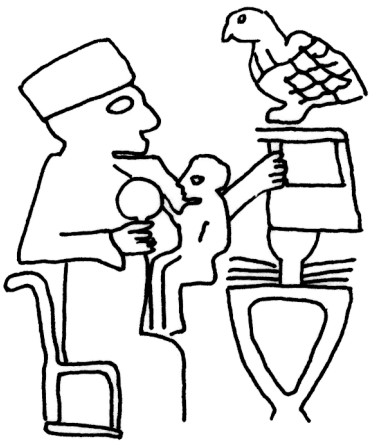


Plate 111. Small portable symmetric Lyre. Maras, Southern Anatolia. Period VII. 515

VII/370-portable symmetric lyre.

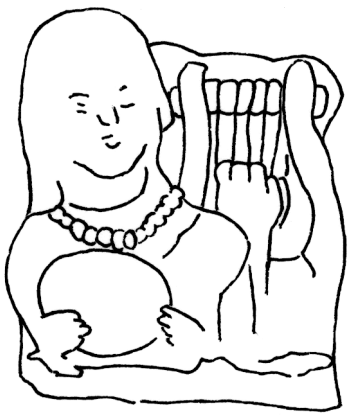


Plate 112, portable symmetric lyre. Seleucid clay statuette. Period VII. 370

VII/371-portable symmetric lyre.

Plate 113, symmetric lyre on terracotta statuette from Kish. Period VII. 371

VII/372-portable lyre.

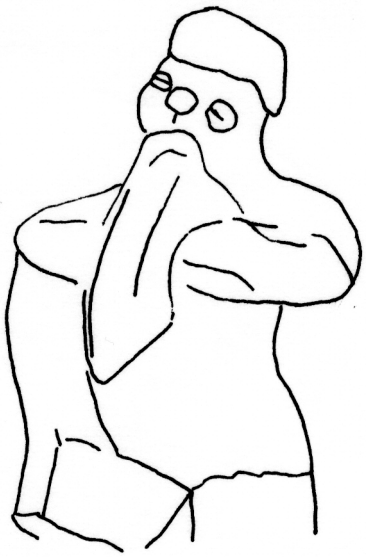


Plate 114, portable lyre on clay statuette. Mesopotamian, Tell ed-der. Period II. 372

VII/29-portable lyre.

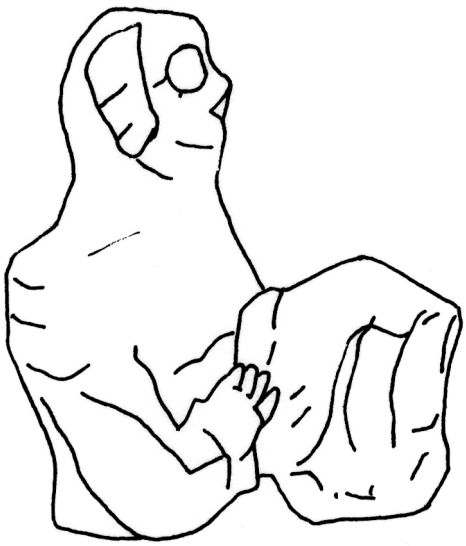


Plate 115, portable lyre on clay statuette. Mesopotamian, Tell ed-der. Period II. 29

VII/374-portable lyre.

Plate 116, terracotta statuette. Mesopotamian, Tell ed-der. Period II. 374

VII/43-portable lyre.

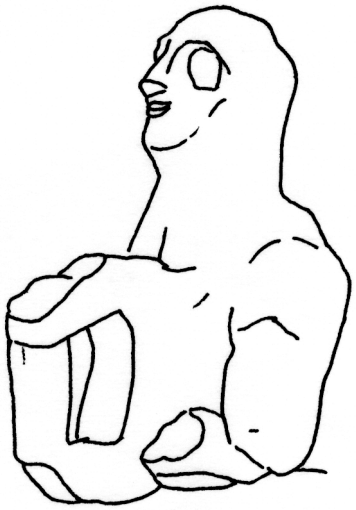


Plate 117, from terracotta statuette. Mesopotamian, Tell ed-der. Period II. 43

VII/39-portable lyre.

Plate 118, portable from terracotta statuette. Seleucid. Period VII. 39

VII/40-portable lyre.

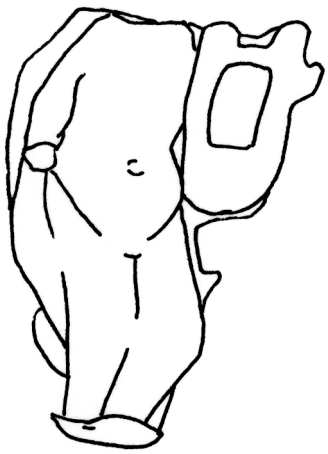


Plate 119, portable lyre on terracotta statuette. Seleucid. Period VII. 377

VII/384-poratble lyre.

Plate 120, portable lyre from terracotta statuette. Seleucid. Period VII. 384

VII/382-portable lyre.

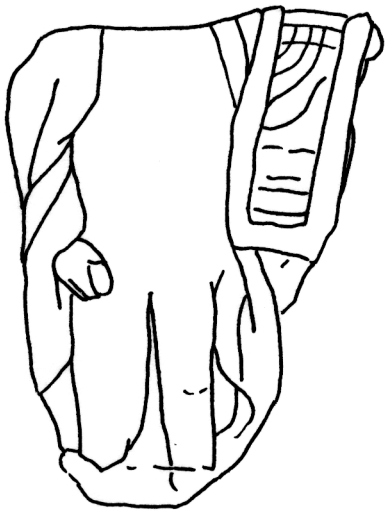


Plate 121, portable lyre from terracotta statuette. Seleucid. Period VII. 382

VII/383-portable lyre.

Plate 122, portable lyre from terracotta statuette. Seleucid. Period VII. 383

VII/385-portable lyre.

Plate 123, portable lyre from terracotta statuette. Seleucid. Period VII. 385

Epitome

In the Ancient Near East lyres are classified in two principal types, both initially zoomorphic: the lateral and the frontal. The lateral type generally displays the profile of the animal whilst the frontal represents the view of the animal's head from the front, where the horns are represented by the uprights. It is quite possible that the oldest examples would actually have been made from the horned skull of an animal to which hide, strings and a yoke with its tuning wedges would have been added. The lateral zoomorphic lyres are the oldest recorded on the iconography but towards the end of period II zoomorphism would have disappeared altogether as seen with two instruments, earlier. The frontal models are also divided in two types: the symmetric designed generally for pentatonism and the asymmetric to fit diatonism. This is substantiated by the fact that the number of strings on symmetrical models is never more than 5 or 6, whilst in general asymmetric paradigms have at least 7 but as many as 11 strings. Variations in the morphology of frontal symmetric and asymmetric models would have beenthe result of regionalisms as is well attested. For example, the Beni Hassan lyricist depicted earlier, is a Syrian trader. His instrument is thus known more specifically in both Syria and Ancient Egypt. The same applies inversely to the Megiddo carved ivory, which probably came from Egypt and subsequently influenced Palestinian designs. These 'Phoenician' ivories were found in large quantities in an excavation in a palace at Megiddo in Palestine.

The designs were diversely influenced in style by the neighbouring civilisations. The excavator tentatively dated them from 1350-1150 BC. Five of the pieces[1] have Egyptian hieroglyphs inscribed and an ornate ivory pen-case shows the name of Ramses III (1194-1163). Three plaques, which may have been used for inlay on furniture or perhaps on a lyre, have the following inscription: *'The singer of Ptah, South-of his-Wall, Lord of the life of the Two lands, and Great Prince of Ashkelon, Kerker'*. Kerker[2] seems to have been a woman minstrel to the service of the Egyptian god Ptah in Palestine, as with the woman singer at the court of Byblos in the West Amon story[3]. The first two of Ptah's titles apply to his cult-home at Memphis in Egypt, the third, 'Great Prince of Ashkelon', implies a cult-seat at that Palestinian city. Thus the regional stylistic influences would explain the variety of designs from which some toponymic classification could be envisaged. The Beni Hassan model, for instance, would be the Syrian type whilst the Megiddo example would typify the Egyptian lyre, the influence of which is to be seen up to the Assyrian period, in which the gracile uprights are taken from stylised birds' necks. The small bowl type instruments would be Palestinian whilst arched models that we find later in Greece would have come from Anatolia.

With time, instrumental design tends to unify and thus by the Seleucid period frontal lyres, which are the only ones to survive from that time, are only of a few limited types, all of them symmetric but no longer in the pentatonic arrangement. This is probably explained by the greater understanding of the equation which rules pitch: the relation between length, mass and tension. With this knowledge the return to symmetry would have been made possible and this is why such instruments predominantly reappeared at that period. Lyres would have been played with the fingers or a plectrum.

Whichever was used would have depended on the intensity and the dynamic of the sound required and also on other details such as the spacing between the strings, etc. A string plucked closest to the bridge gives a sound with predominant harmonics and the roundest when the string is plucked closest to its middle.

1 The ivories were published by G. Loud, *'The Megiddo Ivories'* in OIP, University of Chicago, LII (1939), with a translation of the hieroglyphic inscriptions by J.A. Wilson on pp. 11-13. Photographs of the Egyptian pieces appear on Pls 62-63.
2 Kurkur or Kulkul.
3 Pritchard ANET, pp28, fn 39, p. 246, fn 30.

Regarding tuning devices, it seems that the wedges seen on the earliest lateral zoomorphic models were such a favourite that their success lasted at least 3000 years. This method was never used on harps or lyres because it would have been inappropriate. Similarly the hanging tuning tassels found on lutes and harps would not have suited lyres as they would have interfered with the strings. The soundboard material would have been either leather or wood. Since leather has a tendency to stick naturally to wood in its rawest state, that is straight from the animal, it is then reasonable to assume that it was used in preference to wood, the preparation of which being more demanding.

In the case where wood was used, glue would not have been needed for the positioning of the soundboard as is still the case for the Hungarian cembalum, because the soundboard is pressed onto a frame and held in position by the pressure of the strings. Regarding the strings, gut would have been the ideal material on the grounds of its availability and versatility. Ornamentation was an important matter. We have seen that early zoomorphic instruments were very ornate but with time decorations tended to disappear as musicians must have noticed that sound quality is inversely proportionate to that of the decoration.

Plate 124, Relief of Ashurbanipal (668-626 BC) showing a lyricist and a harpist. Niniveh. 705

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BOOK III

Organology

III - Lutes

Table of contents

Introduction 308
Hypothesis of the god numbers 311
Organology 315
Philology 316
Iconography 320
Classification of lutes 320
Index to periods 320

Table of illustrations

Tables

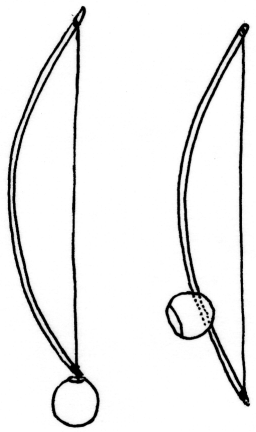
A number placed at the end of a caption corresponds to the iconographic classification of the author.

Plate 1, a and a', bow harp, side and front view; b and b' lute, side and front view 309
Plate 2, Soussi rabab from Morocco 310
Plate 3, fretting of the lute 312
Plate 4, impression from seal cylinder. Southern Mesopotamia 9 321
Plate 5, detail of plate 4 above 321
Plate 6, stamped terracotta. Long-necked lute from Uruk 255 322
Plate 7, Akkadian seal impression 218 322
Plate 8, detail of above 323
Plate 9, impression from seal cylinder. Akkadian 221 323
Plate 10, detail from plate 9 above 323
Plate 11, fastening of the strings in the lute from an Egyptian model 325
Plate 12, stamped terracotta from Ischali 229 327
Plate 13, stamped terracotta from Eshnunna 228 327
Plate 14, stamped terracotta. Eshnunna 227 328
Plate 15, stamped terracotta from Ischali 230 328
Plate 16, stamped terracotta from Kish 236 328
Plate 17, stamped terracotta from Iraq 254 329
Plate 18, terracotta statuette. Mesopotamian 251 329
Plate 19, stamped terracotta. Iran 250 329
Plate 20, terracotta statuette. Iraq 248 330
Plate 21, stamped terracotta from Kish 243 330
Plate 22, stamped terracotta from Tello 242 330
Plate 23, terracotta statuette from Kish 235 331
Plate 24, stamped terracotta and detail. Kish 237 331
Plate 25, stamped terracotta. Iraq 258 331
Plate 26, stamped terracotta. Iraq 257 332
Plate 27, stamped terracotta. Iraq 253 332
Plate 28, terracotta statuette from Susa, Iran 225 332
Plate 29, terracotta statuette. Susa, Iran 226 333
Plate 30, terracotta statuette from Susa, Iran 240 333
Plate 31, stamped terracotta from Khafage 252 334
Plate 32, stamped terracotta from Mari 247 334
Plate 33, impression from black calcite seal cylinder, and detail. Iran 373 334

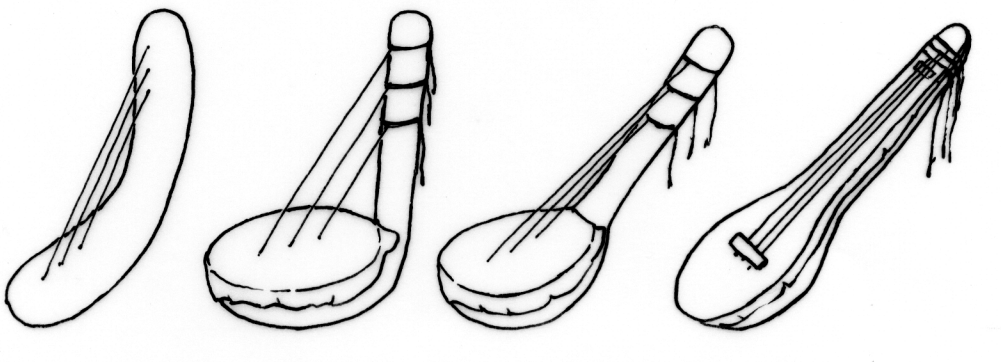
Plate 34, impression from lapis lazuli seal cylinder, and detail Isin/Larsa 457 335
Plate 35, impression from chlorite seal cylinder from Mari, and detail 409 335
Plate 36, stamped terracotta from Larsa 231 335
Plate 37, stamped terracotta from Iran 249 336
Plate 38, stamped terracotta, Babylonian 219 336
Plate 39, stamped terracotta from Tell Mamabaqat, Syria 342 336
Plate 40, kudurru (boundary) stone relief from Susa, Iran 232 337
Plate 41, orthostat from Alaca Huyuk 233 337
Plate 42, impression from quartz seal cylinder. Kassite 256 337
Plate 43, engraved bronze vase. Iran 244 338
Plate 44, engraved bronze from Iran 245 338
Plate 45, engraved bronze from Iran 246 338
Plate 46, stone relief from Karchemich411 339
Plate 47, stone relief from Karchemich 412 339
Plate 48, stone relief from Zincirli 413 339
Plate 49, stone relief from Nimrud 414 340
Plate 50, stone relief from Karchemich 234 340
Plate 51, terracotta statuette from Lattakia, Syria 500 341
Plate 52, terracotta statuette. Seleucid 266 341
Plate 53, terracotta statuette. Seleucid 264 341
Plate 54, terracotta statuette. Seleucid 263 342
Plate 55, terracotta statuette. Seleucid 260 342
Plate 56, terracotta statuette. Seleucid 261 342
Plate 57, terracotta statuette. Seleucid 265 343
Plate 58,terracotta statuette. Seleucid 241 343
Plate 59, terracotta statuette. Seleucid 239 343
Plate 60, terracotta statuette. Seleucid 267 344

Introduction

Lutes stem from two prehistoric and contemporaneous sources. Firstly from the hypothetical[1] bistructural archaic monochord bow-harp:



and secondly from the monostructural arched harp, which would have evolved in the trichord bistructural items as has been recorded earlier.



The transition from harp to lute would have been inconspicuous. There is in fact very little difference between the two instruments: with the bow-harpIt would have sufficed to straighten the bow of the harp and add a bridge on the soundboard allowing for the string to vibrate freely from the neck. The bridge must have been intended as a device for lifting the string from the neck rather than being intended, initially, as an apparatus for transmitting the vibrations of the string to the soundboard, for the purpose of amplification.

1 This statement is made on the grounds that we have no iconographic representation yet of the primitive bowharp. I hypothesise its existence in the Sumerian context only in relation to philology which has provided us with the term giš.p/ban-tur. 'small wooden bow'. It is doubtful that the lute stemmed from any other instrument.

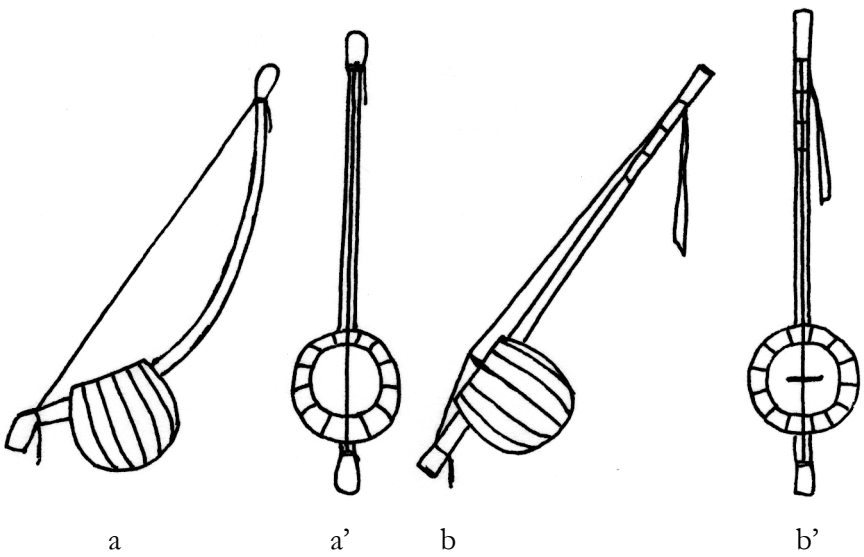
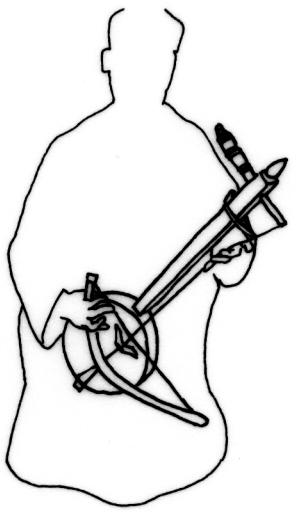


Plate 1, a and a', bow harp, side and front view; b and b' lute, side and front view. Note the similarity between a' and b'.

The process of the straightening of the bow would have been a long one. During the course of evolution the string would have produced more than one sound using the technique of variation of tension, as is still practised on the Moroccan rabab and on its Soussi[1] form, and other types spread throughout the Middle and Far-East (See below). Once the bow straightened the 'variation of the string tension' technique would have been replaced by the 'variation of the string length' method. This latter usage was more accurate because it was dictated by frets or fret marks placed on the bow which, by then, had become the neck or more appropriately, the finger-board.



1 The Sous is a valley in Morocco which is lined by the High Atlas to the North and the Anti Atlas to the South. It roughly occupies a triangle delimited by the towns of Agadir, Tiznit and Aoulouz.

It is very unlikely, however, that both forms were played alongside in antiquity as there would have been too great a difference of volume between them whilst playing.

The long-necked lute would have stemmed from the bow-harp and eventually became the tunbur; and the fat-bodied smaller lute would have evolved into the modern 'ud.

However it is reasonable to surmise that the bow-harp survived for a very long time as a pastoral instrument. It has indeed survived to the present in remote parts of Africa for the same reason. It is not until the discovery of the friction-bow that these early harps would have returned as fashionable in the urban life, as bows would have made them sound loud enough to compete with other plucked instruments.

However this comes much later. As a consequence of the speculations mentioned above, it can be further assumed that the lute pre-dated the lyre which can therefore be considered as a development of the lute, rather than the contrary, as had been thought until quite recently.

What makes the lute an instrument of paramount importance in the genealogy of the string family, in relation to the early date when it appeared, is that it generated the principle of fretted instruments where each string produces more than one sound. This constituted one of the greatest developments in the science of organology. The size and position of each of the frets or fret marks, was consequently approportionated to the speaking length of the strings. It probably is this principle which led the Sumerian theoreticians to the apprehension of ratios, rather than the principle of ratios leading them to the concept of the fret.

Thus the lute not only dates but also locates the transition from musical protoliteracy to musical literacy: once proportions became tangible to the theoretician's reasoning the notation of ratios such as those seen in the theoretical texts of BOOK I, would have been apprehended by disciples, and so theory was borne.

Hypothesis of the god-numbers

The position of the frets would have coincided with numbers attributed to the gods of the pantheon. This was discussed earlier in Book I. It is possible however that it was the measurements of the position of the frets or markings that would have been used to define the god-numbers rather than the contrary[1], in all probability because of animism. The sound of the string was the voice of the spirit, the god; the size of the free-string was that of Anu and its length equated to 'his' name: Anu = 60. The same principle would have applied to the other deities.

The god-numbers would have either expressed units of frequencies and units of string lengths: Anu with 60; Enlil 50; Ea 40; Sin 30; Šamaš 20 and Ištar 15. Thus would have constituted the basic framework. Other gods such as Šakkan and Nergal shared number 14; Gibil; Nusku had 10 and Adad 6.

Whilst they were excluded from the mainframe, they were nevertheless complementary to the system and it is thus possible that these gods were later added when diatonism added to pentatonism.

The ancient theoreticians would have established that the basic string of the lute measured 60 units, where the unit is undefined, and then placed frets, raised or marked, at each one of the numbers for the other gods.

They would have ended up with a pattern (Plate 3) with a tonic note, the free strings, Anu's 60; then the minor third; the fifth and the octave, all arising from Enlil; Ea and S..n's numbers, respectively. The ratio of Anu to Ištar, 60:15 = 4 (note, Ištar:Šakkan = 15:14 = 60 - 56 = 4) would have given the size of the semitone fret, which equals 2 ŠU.SI = 2 *ubanātu*, 'two fingers', which is 3.32 millimetres, since the KÙŠ= *ammatu*, amounting to 30 ŠU.SI = 30 *ubanātu* is approximately 50 centimetres, the average speaking length on a lute.

1 This assumption of mine was recently commented by Professor Gurney in the *post scriptum* of one of his letters to me in which he writes: '*...it could perhaps have existed independently among artists and musicians for centuries and the Middle Assyrian scribes were merely adopting it...*'

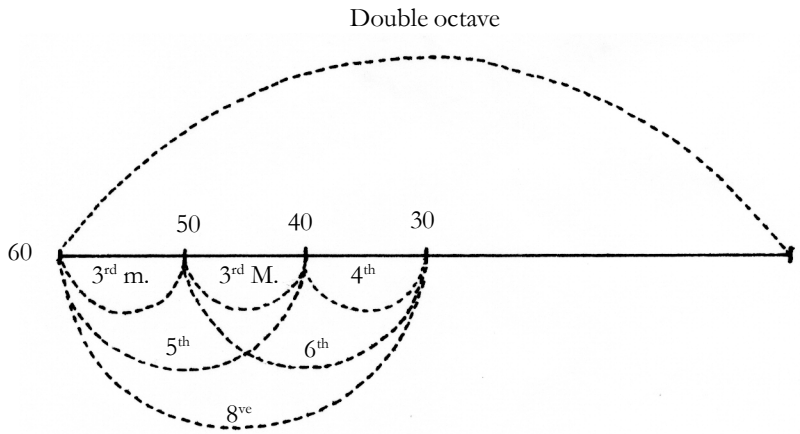


Plate 3, fretting of the lute.

Professor McClain, in a written communication in support of my theory said added that:

'The general thesis that the Bible is a mathematical construction probably has to be accepted at a far greater depth than any of us have imagined. It is clearly a paean to Holy Ten-ness celebrated in Pythagoreanism, derived from the Marduk Cosmos of Enuma Elish, but grounded on the unification of base 6 and base 10 into base 60 in Sumer by the end of the fourth millennium BC if not a thousand or more years earlier (no matter where the idea came from). In Judaism we see it in the minyan of 10, in the Ten Commandments, and in an elaborate development of base 10 calculations that nobody has bothered to study carefully enough. The basic cuneiform glyph for the unit was turned at right angles to notate 10, so that 9 is the first limit encountered and became (in Philo's metaphor) the most warlike of numbers, the symbol of Judah as Jacob's fourth son (1-3-5-9 as male generators) so that multiples of these first 9 produce also the next level of symbols from 10 through 90 where the third set (of hundreds) commences but is cut off at 22 symbols by 400-only in Judaism. Why?

A simplistic answer borrowed from Athens is that Justice is four. But why four? Because matrix (Great Mother) arithmetic descends through Isthtar (goddess 15) from Sumerian Inanna as reciprocal of 15 (in 15x4=60) in base 60 notation (in its very special and limited sense), and 4 plays a significant role in dumping this early mythology and its precipitate deifications of number before more general aspects were fully grasped. She, (the virgin 2, whatever her local name) defines the matrix as a matrix of doubles (Robert Brumbaugh's invention, although he never understood what it meant in the wider musical sense, and was publicly chastised by a Yale colleague for misusing this technical mathematical term). (Historical ironies remain absolutely endless!) The arithmetician's double is the musician's normative octave (after the naming system is more fully developed.) (Until then Athens termed it dia-pason meaning "through all the tones," however many they were conceived to be.)

The universal attention to perfect inverse symmetry had always required two octaves (the great and the small to hold each other's reciprocals (that enjoy explicit notation in base 60, but double interpretation in base 10) and so the reduced ratio of

4:2::2:1 (achieved only on Day 4 of the Creation Week in Genesis) provides the double octave frame which trashes all of the older female deities. (Powers of two have endless female names in Mesopotamia; in Plato they are reduced to nursemaids, necessary of giant size because their feeble tone children must not have their feet touch the ground until age 3 where they begin to walk alone, but are left undifferentiated by sex until age 6.) Bible scholars have yet to discover that Genesis holds this Platonic pythagoreanism in only very slightly different metaphors. Four unseats the whole ancient Pantheon.

But Bible authors exploit also Diophantine approximations that held no interest for Plato and the Greeks, and for both the square and the cube roots of 2 that divide tone space into 2 and/or 3 equal parts--and on which Plato succeeded in focusing the attention of the Greek mathematicians in the fourth century BC. Not, however, for the sake of better approximation, but rather to gain acceptance of accurate geometric solutions as representing numbers in the full sense of real number. However, attention had always been on these two roots (from the beginning of our written records). In Egypt the throne is guarded by the Horus Eye fractions of 1/2, 1/4, 1/8, 1/16, 1/32 and 1/64 and everybody (whoever that proves to be) recognized 64 (i.e., 2^6) as BOTH "Square" (8x8) AND "Cube" (4x4x4) while computing it by doubling as 2x2x2x2x2x2. (A few days ago on BIBAL somebody was discussing who died at 127. It is Abraham's Sarah, for successive powers of the female 2 always sum to one less than the next larger power, and this made Sarah by 64 the most beautiful woman imaginable and fully qualified to share Pharaoh's throne.) No wonder he claims her as soon as she appears, just as Abram expected when he asker her to lie about her being his sister.

But historical Judaism is mainly the invention of Bible authors, perhaps as second sight gained later and then retrojected into a mythical history.) Why not? The Persian savior was permitting the return to Jerusalem and financing the rebuilding of the temple, so that authenticating Jewish rights to their own land needed to sound convincing, and it was and is (except to doubters like many archaeologists and me). There probably was no invasion as described or later exile to Egypt, nor an escape from there. By the time these stories were composed the Jews were indigenously Canaanite. In the Marduk cosmos that I describe them as using, YHWH is taking over a Canaanite adaptation of the

Babylonian tale whose Sumerian arithmetical roots now can be traced as far back as 2650 BC but probably originate in the fourth millennium rather than the third. This Bible text is not history but rather, brilliantly artful story telling with an easily identified agenda, both politically and arithmetically. The Torah holds better knowledge of both square and cube roots of 2, but the cube root correction could NOT be used on numbers smaller than 100 for technological reasons within early Egyptian duplatio. And so Isaac, Abraham's first and only lawful heir is born when father is 100 to implant this genetic capacity in the gene pool of the Chosen.

But they needed also a "suppressed" genetic factor of 7 secured by Abram's birth as a triplet from a 70 year old father and his incestuous marriage to his own half sister. Bible authors are as endlessly ingenious as Homer in handling these awkward metaphors imposed by long-accepted usage.

Athens and Jerusalem developed this material either together, or in tandem, a d it's unclear whether or when and IF either borrowed from the other. That is a problem linguists can work out to their own satisfaction, perhaps, after they discover what is happening in the arithmetic.

In short, the 22 letter alphabet, truncated at 400, is not adjusted to anybody's conception of the biblical canon in my opinion. It is far more likely to have been imposed on both Old and New Testament conceptions for the arithmetical reasons I point out here. Exactly which books are intended to constitute either set of 22 is a secondary, not a primary matter. Four as 400 is probably determinative.

Now let me summarize developments: At first One (whole or all, meaning thirteen tones in the spiral of fifths) dominates, with its conception of giants (with cyclically excessive ratios of 2:3). When the cube root correction is discovered (1.26 improves 5/4=1.25 to the fifth decimal place) then we have an excuse for the universal flood (never mind what river or where or how long the rain fell), obliterating the human race except for Noah and his triplet sons born when he was 500, and who achieve 100 before the flood. The Chosen are grounded on a base 100 arithmetic in the special sense described here as an alternative to the Mesopotamian base 60 and the preferred cultural reductions to base 10. However, this new cube root can not be used twice in succession until 100 is squared into 10,000 - where 1.26 can now produce two excellent offspring (the second at 63/50 squared into 3969/2500 but computed not in this way, but in duplatio as 100+1/4+1/125).

Now we have 3 tones in E.T. But we need 12 as standard boundary markers.The best available sources are 3 more tones in spiral fifths tuning each with an excess of 2 modern logarithmic cents. However, if the index or seal is place on either the 2 or 3 tone (by giving it the largest integer, then six derivatives will have flaws of no more than 2 cents, and the last three of no more than 4 cents - and modern tuners can not work aurally within such small margins. In a sense, Neugebauer is right that Mesopotamian arithmetic competence is 3000 years ahead of Europe. Vincenzo Galilei could not complete more accurately. In other words, Judaism is tied conceptually to the mastery of an equal temperament 12-tone octave but in theory only. Musicology neither needed nor even desired this solution.

However, this divine achievement (remember that factors of 7 are denied to mankind as working days.) is accessible only to Deity. Only God can use 63/50. I propose that David with his ten thousands, absolutely needed for this divine purpose, is not permitted to build the temple (this temperament requires the minimal octave of 120,000 to 60,000 for its 12-tone solution, as I've shown elsewhere and anyone can test for himself) because a merciful deity (most Gracious, most Merciful in the Qur'an) NEVER intended man to lived within his own strict limits. YHWH's relaxed limit of 7/5 for the square root is also Plato's and its one-percent error of excess and/or deficiency opens the door to many alternate tuning theories, exploited still the world over and thus validates human freedom to experiment within this aurally tolerable limit.

Now I'm sending to four of the finest professional mathematicians who have ever helped me over the last 35 years (Sacksteder, Kappraff, Abraham, and Steve Willson) and also to four of the very best informed musicologists (Godwin, Dumbrill, Thomson, and Graham Pont in Australia) knowing that Fearnhead will forward it to a fifth one in England (Leon Crickmore). I do this because I believe in the value of these ideas for future research whether or not I live long enough to publish my own results,and because NO linguists anywhere (in Greek, Hebrew, or cuneiform) fully understand what I'm doing with Semitic mythology. My own health is already hazardous, and there is simply too much fun to be had with these ideas for them to "get lost" if anything should happen to me. I hope somebody can pass these hints on to young people who have the imagination to carry on this kind of study. I know I sound as arrogant as the Devil, but when I read the Bible I realize that its authors always give the very best lines to the Serpent.

Nobody else can call God a liar and get away with it like he does For Plato the worst lie is one told in total innocence. I hope I'm not telling any bad ones here. But friends like these can catch me if they choose. Bible scholarship is sound asleep where multiplication is required. Only duplatio is actually needed for musicology. I need expert help in trying to make that clear to scholars who never progress beyond counting.
Ernest 2005

Organology

The invention of the bridge as a consequence of the straightening of the bow of the original harp was of considerable importance for this is what allowed for general volume control (selective volume being brought up by the variations of force with which the musician plucked the strings). The principle came from the observation that the higher the bridge the greater the volume because of the increase in the pressure on the soundboard relative to its thickness and to the resistance of the strings.

The simple straightening of the curve of the primitive bow-harp which produced the archetypical lute led to the birth of the two principal families of stringed instruments in antiquity. In the first case the strings pull the soundboard out, that is, away from the soundbox, and in the second the strings push the soundboard in, that is into the soundbox, by means of a bridge. The archetype of the first case is the harp and of the second all stringed instruments which are provided with bridges upon which strings apply a downbearing force, such as lutes and lyres. It is at this period that both families of stringed instruments, at this moment of their evolution, became equipped with soundboxes rather than with resonators as are found on the archaic bow-harp and related types. This is a different concept altogether: resonators have no soundboards and will generally amplify only one pitch, as is the case with such ones placed under each of the blades of a xylophone. Alternatively, soundboxes with direct or indirect sound transmission (*i.e.* with or without a bridge) communicate the vibrations of their strings directly to their soundboard which is an integral part of the soundbox. As a result, soundboxes amplify the whole frequency range of their strings. The morphology of this development was probably inspired by the leather-headed drums which are

nothing other than soundboxes where the soundboard is activated by hand or some percussion item such as a stick or hammer. The soundbox in stringed instruments is nothing other than a drum which is activated by the direct or indirect vibrations of the strings. This is why the early terminology for the classification of instruments confuses percussion and stringed instruments.

Philology

It is only recently that philologists[1] have surmised that Sumerian giš.gù.di, Akkadian *inu*, are words to equate with the long-necked lute[2]. The Chicago Assyrian Dictionary gives *inu* [3] as 'talking, or noise-producing stick or wood'.

A series of lexical texts[4] mentions stringed instruments divided into two sections. In the first part[5] we have numerous names of different types of harps, lyres, soundboxes of percussion instruments and their various pieces. The second part[6] has wooden objects which can be described as functional poles and sticks, with special items at one or both ends such as crutches, goads, stocks and staffs. It includes the Sumerian giš.gù.di, or giš.gù.dé. Another list[7] has Sumerian words of the giš.gù.di family connected with the lute and related to both its structure and playing. (see page opposite.)

An unpublished fragment[8] gives *inu* as giš.sa.3 implying that this instrument was fitted with three strings. With regards to line 132 above, the number does not, obviously, refer to an instrument with 30 strings but rather to their speaking length.

This variation would probably have indicated that this lute had strings of a speaking length of 30 *ubanātu*., which is about 50 cms.

1 Landberger, B., MSL) 4, 21; Römer, W. H. P., *Sumerischen 'Königshymnen' der Isin-Zeit* , p 197; Collon/ Kilmer, in opus cit.,15 ff.
2 Sumerian gù-dé, Akkadian *nagāgu*, 'to roar, bray'; *sagāmu* 'to cry out'. Literally 'shouting-head'.
3 CAD I 151f. *inu* A.
4 Ḫḫ
5 VII B 38-116: MSL 6, 118-125.
6 VII B 117-185: MSL 6, 125-129.
7 Ḫḫ VIIB 117-134.
8 Ḫḫ. VII B.

One lexical text[1] has the entry: GIŠgi-eš-gu-da GÙ-DÉ = *inu*. which heads a list of musical terms preceding the Akkadian verb *zamaru* 'to sing' and in another[2] , GIŠ gù-di and GIŠ dù-a are mentioned along with 89 other organologic and theoretic words[3]. Another list[4] has: mu.gù.dé = giš.gù.dé: *inu.*

ḪḪ VIIB 117-134

117	giš.gù.dé			
118	giš.SAR			
119	giš.ù.lú.DU/$ša_4$	=	*inu*	'song-maker'
120	giš.gaba.gub	=	*inu*	'breast-stander'
121	giš.šu.galam.ma			'hand-descending'
122	giš.sa.šu	=	*inu*	'covered/fretted-string'
123	giš.ùr	=	*inu*	'leg'
124	giš.u_5	=	*inu*	'rider'
125	giš.i.nu			'to revere the statue'(?)
126	giš.dù.a			'knowledge'(?)
127	giš.dím			'for creation'(?)
128a	giš.dim			'DIM*risku* ligature/fret'(?)
128b	giš.bal			'royal seal'(?)
128c	giš.á.gá			'side-placed'(?)
129a	giš.tún			'deep/bass'(?)
129b	giš.sikil			'clear'
130	giš.gal			'large'
131	giš.šu.gal			'big hand'
132	giš.gal.30.àm			'30 big'
133	giš.gù.dé.ša.$u_{18}$$ša_4$			'sausa sound. Plucked?
134	giš.gù.dé.ša.$u_{18}$$ša_4$ gú-gar.ra			'shoulder-placed-plucked'(?)

The term is also present in another[5] as: *pi-it-nu [ta-p]a-lu, [x-x]-x-lu,[i]-nu*. but the Sumerian column is broken. Another[6] has giš.gù.dé tag.tag.[ga.zu]: (text *gan)-nu lap-tu-ka* which translates as: 'when you pluck the *inu*' and another[7] has: giš.bal.ki.š..r.ra mu(var.mi).ni.in.gar: *i-na-an adi*[ša]*-ri iškum.*

1 AfO 7, 273, erimḫusIII, 93 .
2 Proto-Lù.
3 MSL 12, 56:639 f.
4 Emesal vocabulary II, 152.
5 Antagal D, 178ff.
6 Langdon's Oxford editions of Cuneiform Texts.
7 Lugale VIII, 23.

The oldest text mentioning the giš.gù.di is the Gudea Cylinder A VI4 where king Shulgi of Ur, 2094-2047 BC, in the self-laudatory Hymn B[1], writes:

'I, Shulgi, the king of Ur, dedicated myself also to music; nothing related to it was too complex for me. I penetrated the depth and width of the consummate musical training of the tigi and adab compositions. The šu-kár instrument, to appease the heart in anger, and in their preparation I did not bungle anything; by pondering and striving I succeeded in fixing their rules. I learnt the sweetness of the string thirty[2] instrument and to the zàmí, the 3 string instrument and the essence (heart) of the musical craft, the great šà-ša$_4$, the algar, the *sabîtum* (which) are of the king's rite, I taught the herald their fingering. I taught/knew how to pluck the strings of the mirîtum. The Urzababa instrument, the *ḫarḫar*, the *zanarû*. The 'Big Dog', the giš-dìm, that give sounds like (the cries of) the boatmen. A son of a musician, with a pure hand, made (them) for me. The gù-di instrument that had never been played (before by me), when it was . . . brought to me, Of that very instrument I divined its secret, I was able to set in order as something that had ever been in my hand; whether to loosen or to fix the strings on it did not escape (the ability of) my hand.'

The Akkadian word *inu*.is much isolated. We do not trace it in any other Semitic language and it seems that it was known only under its Sumerian equation of giš.gù.di. On the other hand it is possible to see some similarity with the Sanskrit/Hindi *vînâ*, which is a long-necked and fretted lute equipped with a resonator as would have been the case with the earliest form of the instrument from Mesopotamia.

Now Al-Farabi mentions an instrument, the Arabic *šarūdh* which we find in India under the name of *sarod*, as the favourite of the Arabs. It was the invention of a certain *Hulays Ibn al-Ahwas* who lived in the mountains around Samarkand. According to Farabi, the instrument was invented in the country of Mah in the year 1228 of the Alexandrine era, that is the year 306 of the Muslim Arabs.

1 Thureau-Dangin SAK (Leipzig 1907) 96f.; SAHG, (Zürich and Stuttgart 1953)144.
2 Castellino, *Two Shulgi Hymns (B and C)*, Studi Semitici, vol. 42. (Rome, 1972) 47-49, ll 155-172.
3 See above.

There is a drawing in a copy of the manuscript but it makes no sense. Vüllers' *Persico-Latinum Lexicon* defines the *šarūdh* as the 'King of the rud', that is the 'best' of the instruments of the 'rud' family. The word 'rud' comes from the Sanskrit '*rudrī* '[1] which means 'stringed instrument' and shares some homophony with Sumerian gù.di. The word spreads on the one hand via the Indo-European medium into the Spanish 'rota'; French 'rotte'; Welsh 'crwth', etc, and on the other, via the Semitic medium, into Arabic *'ud* ; Ugaritic *'d* [2] ; Spanish 'laúd'; German 'Laute'; French 'luth' and so forth. The long-necked lute in the OED is orthographed as *tambura*; *tambora, tamera, tumboora; tambur(a)* and *tanpoora*. We have an Arabic *ṭunbur* ; Persian *tanbur* ; Armenian *pandir* ; Georgian *panturi*. and a Serbo-Croat *tamburitza.*

The Greeks called it *pandura; panduros; phanduros; panduris* or *pandurion*. The Latin is *pandura*. It is attested as a Nubian instrument in the third century BC. The earliest literary allusion to lutes in Greece comes from Anaxilas in his play *The Lyre-maker* as *'trichordos'* which is the Sumerian giš.sa.3 = *pitnu šelašti* [3]. According to Pollux, the *trichordon*[4] (sic) was Assyrian and they gave it the name *pandoura*[5] . There is here some homophony with b/pan.tur, where Sumerian giš b/pan[6] equates to Akkadian *qaštu (tilpanu)* = (wood)-'bow' and Sumerian 'tur' equating to Akkadian *seḫeru* = 'small'. This is further reflected in Georgian where *tar, thir* and *tul*, also mean 'small'. That the gù.di found its origins in the ban.tur may be hypothesised from the etymology of both terms. On the one hand, the small arched-harp, ban.tur which may have kept the name after the straightening of its neck, eventually led to *pandura*. and, on the other, the gù.di led to either the 'rotte; rota; crwth' or to the '*ud* ; '*d* ; luth; lute; laute and laúd'.

1 In a recent communication, Gérard Huet told me that the Sanskrit word rudri (fem.) is an abbreviation of rudravInA, that is 'vInA of rudra'. Monier-Williams defines it as a stringed instrument "sorte de luth ou de guitare". See Danielou, 'L'Inde du Nord' (Buchet/Chastel 1966).

2 In *šachar* and *Šalim*, l. 12 as *šb'd.yrgm.l.'d* = 7 times to be recited to the accompaniment of the lute?: Gordon, C.H., *Ugaritic literature* (1949) 59; Driver, G.R., *Canaanite Myths and Legends* (Edinburgh 1956) 120 f., and Caquot, A., *Textes ougaritiques I* (1974) 370 f. and n I.

3 MSL VI, 124. In Hh VII B Gap a, line b.

4 West, M.L., *Ancient Greek Music* (Oxford 1992) 80, fn 144.

5 One can assume that it was the reverse which happened.

6 Note that the constellation Canis Major, the 'Big Dog', BAN = *qaštu*, is listed in Šulgi Hymn B as one of the instruments he played.

The theory in BOOK I did not make any mention of intervals smaller that the semitone and thus the problem of the fretting for the long-necked lute, where the speaking length of the strings exceed one metre, remains. Such instruments would have had very large semitone frets, probably as much as 65 millimetres for semitones and as much as 150 millimetres for the tone. These instruments survive today in the form of the various Arabian *ṭunbur* . The purpose of the wide tonal frets is to allow for subtle subdivisions and variations in the size of the third, principally but also of the second, with the result that it generates microtones. If such instruments existed, as the iconography shows, then it must be assumed that theory would have provided for such precise microtones. Thus the hypothetical relation of the god-numbers with the position of the frets is made even more evident since these would have allowed for the division of the octave into thirty microtonal intervals.

Iconography

Classification of lutes

Period I

Period II

Period III

Period IV

Period V

Period VI

Period VII

Index to periods

Period I = pre 3000

Period II = 3000-2334

Period III = 2334-2000

Period IV = 2000-1500

Period V = 1500-1000

Period VI = 1000-500

Period VII = 500 onwards

I/9-lute with pegs.

Plate 4, impression from seal cylinder. Southern Mesopotamia. Period I Uruk. 9.

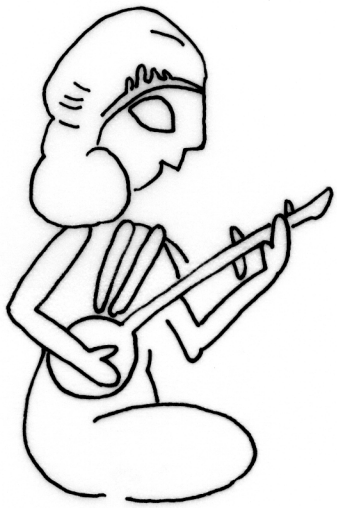


Plate 5, detail of Plate 4 above.

The earliest representation of a lute is provided by a cylinder seal from the Uruk period, before 3000BC (Plate 4 and Plate 5), which was recently acquired by Dr Dominique Collon on behalf of the British Museum. The scene represents a typical reed-boat with pointed poop and prow.

A deity is standing, probably Ea on the grounds of the horned hat. Facing the god is a crouching female identified as such by her hair style. She plays a lute right-handedly in a position typical of that to be seen in a later Akkadian seal. The body of the lute is rounded and the speaking length of the strings would have approximated fifty centimetres. It is not possible to determine what tuning system was used or the number of its strings. The lapicide did not show any frets or any other details of organological importance but it is possible to say that such details would not have faded away with erosion and therefore were not intended originally.

The piece is generally well preserved in spite of a possible later Akkadian 're-cutting' of the deity. The boat is framed by what could be two gates or doors, perhaps an old form of the pictograph ká. = KÁ, *bābu*, 'door', or 'river-locks' but it is difficult to speculate any further on that point. The angle of the instrument in relation to the vertical is about 135 degrees. The angle at which all types of lute are held is a good indication for their dating, since the angle reduces with time to reach about 45 degrees in relation to the vertical during the Seleucid period. Thus the angles would have varied by as much as 90 degrees in a period of approximately 3000 years.

II/255-long-necked lute with peg.

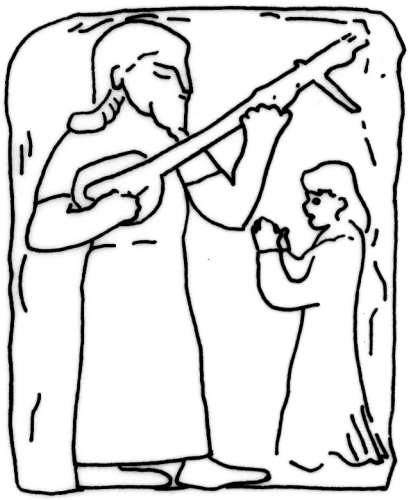


Plate 6, stamped terracotta. Long-necked lute from Uruk. Period II. 255.

The possible representation of a tuning peg at the side of the neck may indicate that another was placed at 90 degrees from the first and is therefore not visible. A third is just seen as a small protuberance at the other side of the first. This technique is still used on the Moroccan *genbri* to this day.

Plate 7, impression from seal cylinder. Akkadian. Period III. 218.

Plate 8, detail from Plate 7 above.

III/221-lute with pegs.

Plate 9, impression from seal cylinder. Akkadian. Period III. 221.

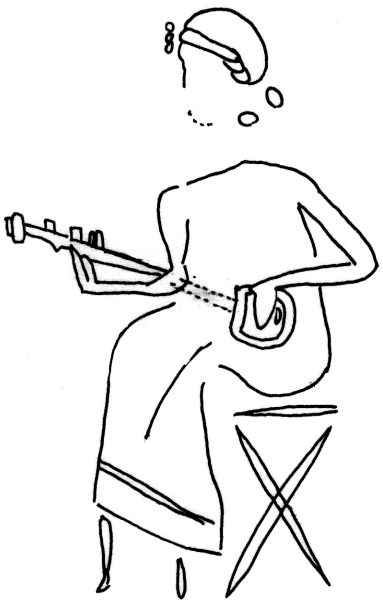


Plate 10, detail from Plate 9 above.

The two seal cylinders above, BM 89096 and 28806, depict a water-god, in all probability the Akkadian god Ea, Sumerian Enki, the keeper of Eridu who also happened to be the god of wisdom and music. In both instances the bearded gods face to the left, they wear the similar horned turbans, flounced robes and fish swim upcurrent from water streams springing from their shoulders. They sit on a similar type of bench. Their doubled-faced and bearded servants, probably *Isimud*, who are standing facing their masters also wear horned turbans but their robe is pleated and belted at the waist. In 218, the left arm is raised in an expression of eloquence or, perhaps, of praise whilst the right hand holds some ritual mace. Another unidentified deity sits opposite Ea, on a similar bench, wearing similar clothing and has his left arm raised in symmetry to Ea's right one, indicating an expression of dialogue. Ea's colleague has a crescent-moon symbol to his left which would identify him as NANA, the god of the new moon, the keeper of the city of Ur. Ea has a vessel symbol behind his head which is consistent with his function of water god. Some instances indicate water springing from similar vessels[1]. A second bearded servant dressed in attire similar to the one closest to the god has, in his right hand, what appears to be a mace or other weapon whilst holding a captive by the right shoulder, a mythical leaf-insect-man holding hands clenched close to his chest with an expression of apology. A third servant stands immediately behind Ea. He wears the same style of clothes as the other two and carries no object but holds his hands in a similar way to those of the insect man.

Both scenes are recurrent themes in the Akkadian seal repertoire[2] but what distinguishes them is the inclusion of a lute player as an atypical addition. In 218, the lutanist and the inscription engraved above him: 'Ur-ur the (male)-musician' Sumerian LÚ.NAR is possibly a later addition to the original design. The glyptographer originally designed the seal including the lutanist. It is to be noted that both musicians are bearded and wear their hair in a bun revealing that they were segregated from gods and servants.

1 Buren, E.D, *Opus cit*. above.
2 Boehmer, R.M, *Die Entwicklung der Glyptik während der Akkad-Zeit* (Berlin 1965), Pls. xliii-xliv.

As a matter of fact they wear their hair in the same fashion as the captive creature. Their robes are neither flounced nor plaited but are simple and belted at the waist. In one instance a bottom fringe is clearly to be seen. One of the musicians sits on a stool with x-shape-legs, probably portable. The other sits on the floor. At first sight both instruments in the seals seem to be more or less similar but a first difference springs to mind: the left hand holds the neck of the lute whilst it is the right in the other. The lutanist is placed between the god-servants who turn their backs to him but the musician looks in the direction of Ea. Thus in this scene the lutanist is a right-handed musician. In the second seal, if the lapicide intended that the lutanist plays for the god NANA then it is natural for him to hold his instrument left-handedly, for reasons of aesthetics. From this we deduce that on the present seal the right or left-handedness of our lutanists was the consequence of the composition of the scenes rather than the fact of their right or left-handedness.

We notice two tassels hanging from the top of the neck of the instrument, from this we deduce it was fitted with two tuneable strings. It is highly probable that the fastening of the tuned string was similar to that in Ancient Egypt, the same as used in Niger today as well as in many other African and Near-Eastern countries. See below:

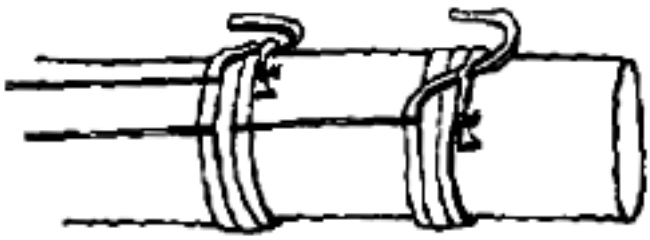


Plate 11, fastening of the strings in the lute from an Egyptian model.

It is impossible to say if the lutanist was using any type of plectrum but we can clearly see that the position of the instrument is very much what we would expect it to be: the left hand is active at the top of the finger-board whilst the right plucks the strings. Regarding the materials used for the making of such an instrument, one cannot be certain but it is reasonable to assume that naturally shaped resources would have used as much as possible: round soundboxes would

have been made from the best half of a dried calabash or a tortoise shell; the soundboard would most likely have been from some animal skin, lamb or perhaps fish. The strings would have been made from the gut of the most suitable animal[1].

The second seal shows a variated instrument. The soundbox in Plate 9 is tortoise-shaped. There are no tassels but three protuberances which at a first appear to be tuning-pegs. However had such tuning devices been known at this early period then there would have been more evidence in the iconography. Pegs would have been a considerable improvement on older systems. Tuning wedges would have been more accurate on lyres whilst harps would have kept their hanging tassels because too many holes would have weakened the yoke. The usage of pegs from such an early period must not be excluded, as certain scholars have, since there existed a term for such devices: giš.dìm.KAK.KAK = *šišku* 'wooden peg'.

We have seen that the lutanists were segregated from the upper classes of the Mesopotamian society during the Akkadian Period and this is also true for the Old Babylonian period and later, where representations on stamped terracotta show that the instrument was more akin to the pastoral[2] than it was to the court, in spite of the aforementioned two British Museum seals which would associate lute playing, if not implicitly, with temple rituals, at least with the upper-classes.

1 I have experimented with the making of gut strings. The thickness depends on which animal is chosen. The thinnest is that made with chicken gut which can be doubled or tripled etc. to obtain the different gauges, then one can use lamb's, and oxen's for the bass. It is thus possible to have sections varying from 1/10th of a millimetre to 2, 3 or even as much as 5 millimetres.
2 Opificius, R, *Das altbab. Terrakottarelief* (1961) Nos 579, 580.

III/229-lute with wide neck and hanging tassels.

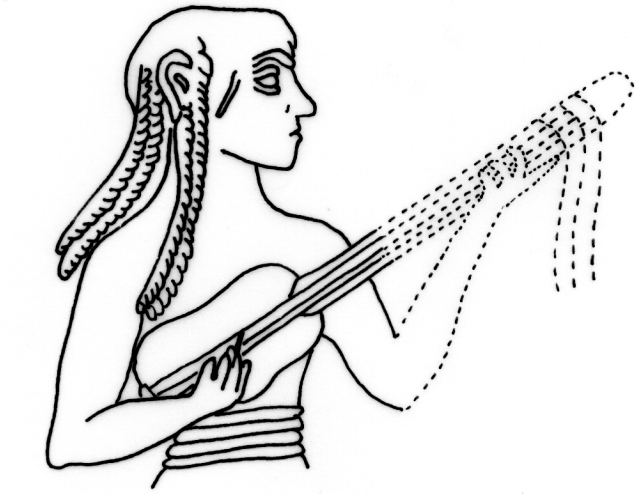


Plate 12, stamped terracotta from Ischali. Period III. 229.

III/228-lute with wide neck and hanging tassels.

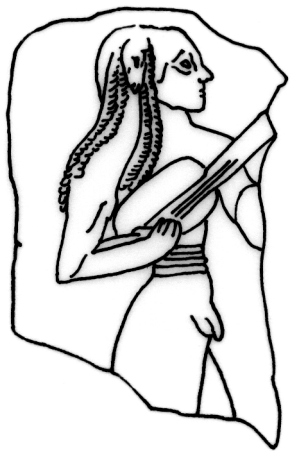


Plate 13, stamped terracotta from Eshnunna (Tell Asmar). Period III. 228.

Note that the head-dress which looks like a lamb pelt with head and four legs as shown in Plates 14 above and below. It is possible that these naked lutanists had shaven heads except for a long pig tail left to grow on the right hand side of their head and which would have provided for holding their peculiar head-dress as illustrated with Plate 15. This style of instrument with two or three strings, wide neck and oblong sometimes concave sided soundbox is typical of Tell Asmar, Ashnunna and Ischali, a small region to the North East of Baghdad in the Diyala region where the examples cited were unearthed.

III/227-lute with wide neck and hanging tassels.

Plate 14, stamped terracotta. Eshnunna (Tell Asmar). Period III. 227.

III/230-lute with small body and wide neck.

Plate 15, stamped terracotta from Ischali. Period III. 230.

III/236-small lute.

Plate 16, stamped terracotta from Kish. Period III. 236.

III/254-lute.

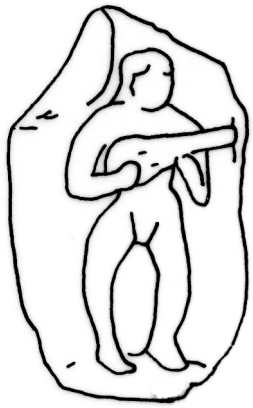


Plate 17, stamped terracotta from Iraq. Period III. 254.

The lutanist above belongs to a tradition of bow-legged and naked dwarfs which are often associated with the lute on both terracotta, see Plates 19, 20, 28, 29 and 37; seals in plates 34 and 35 where the instrument is possibly left to the imagination, as the lute is suggested because of the position of the arms and wrists of the dwarfs but not actually depicted.

III/251-lute with large body.

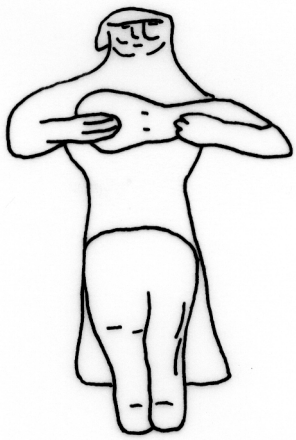


Plate 18, terracotta statuette. Mesopotamian. Period III. 251.

III/250-lute with pegs.

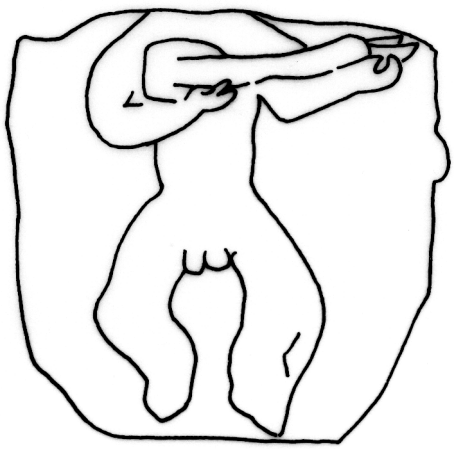


Plate 19, stamped terracotta. Iran. Period III. 250.

III/248-lute with oblong body.

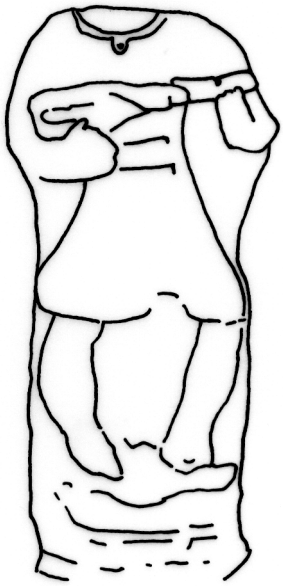


Plate 20, terracotta statuette. Iraq. Period III. 248.

III/243-lute with round body.

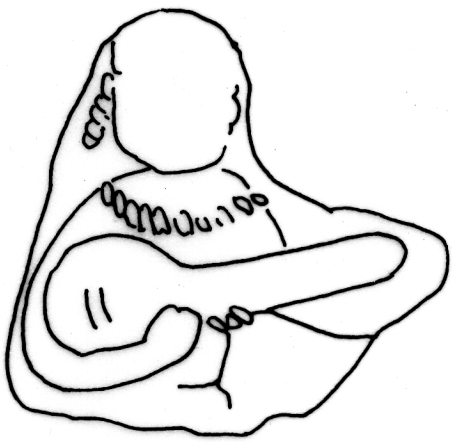


Plate 21, stamped terracotta from Kish. Period III. 243.

III/242-short lute.

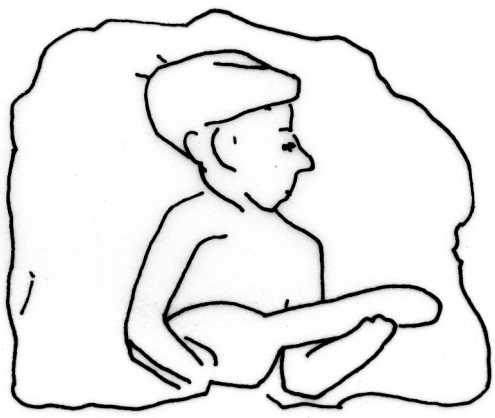


Plate 22, stamped terracotta from Tello. Period III. 242.

III/235-short lute with round body and soundboard holes.

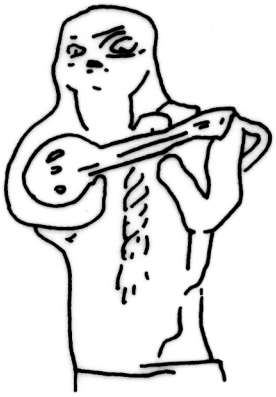


Plate 23, terracotta statuette from Kish. Period III. 235.

III/237-lute with jingles.

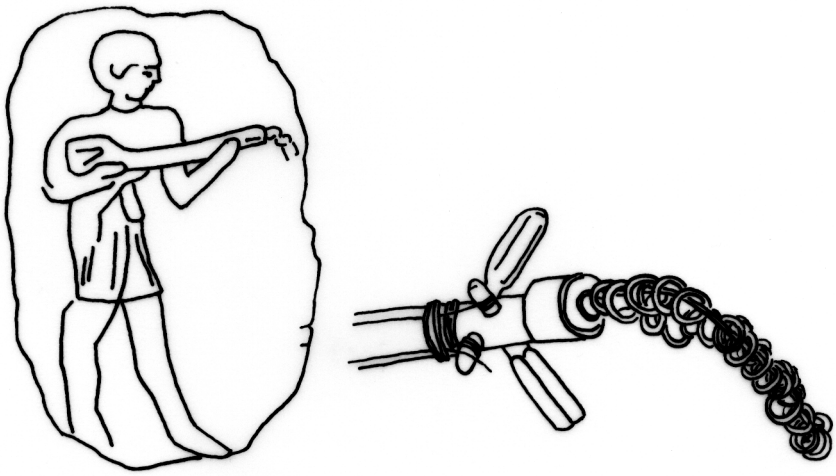


Plate 24, stamped terracotta and detail. Kish. Period III. 237.

It is possible that the instrument above was provided with jingles in the style of those depicted to the right. The tuning pegs shown belong to a modern instrument.

III/258-lute with short hanging tassels.

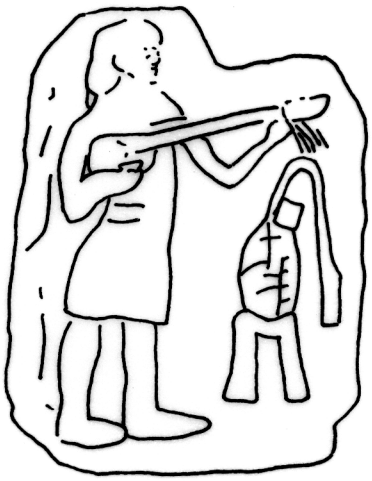


Plate 25, stamped terracotta. Iraq. Period III. 258.

III/257-lute with short hanging tassels.

Plate 26, stamped terracotta. Iraq. Period III. 257.

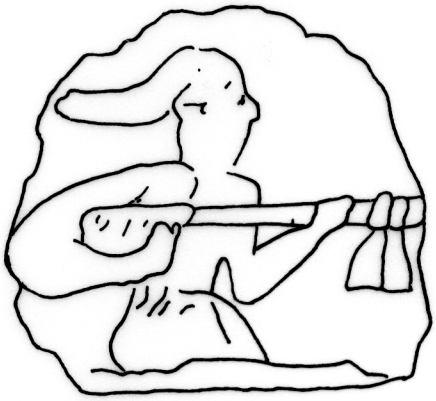


Plate 27, stamped terracotta. Iraq. Period III. 253.

III/225-long-necked lute.

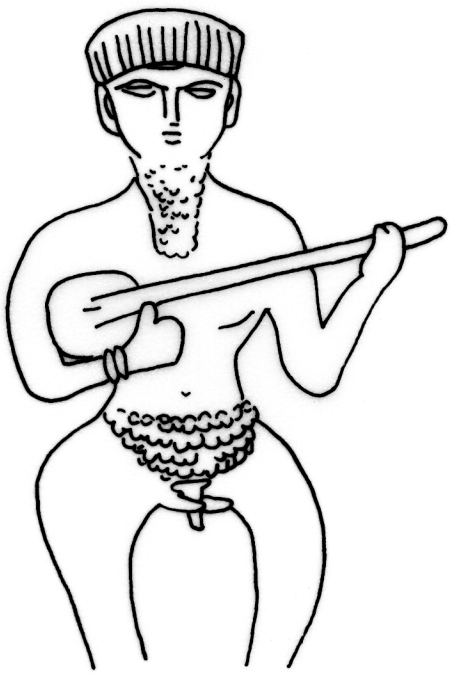


Plate 28, terracotta statuette from Susa, Iran Period III. 225.

These naked musicians belong to a tradition where males play the lute and females the tambourine. In both cases the pubic hair is depicted in the same fashion. Whilst males exhibit horned testicles, the female pudenda is always evident.

III/226-long-necked lute.

Plate 29, terracotta statuette. Susa, Iran. Period III. 226.

Naked bow-legged-dwarf lutanists are often associated with entertainment thus the little character climbing on the side of the musician could be a monkey. Note the use of a plectrum.

III/240-slender lute.

Plate 30, terracotta statuette from Susa, Iran. Period III. 240.

IV/252-pastoral lute.

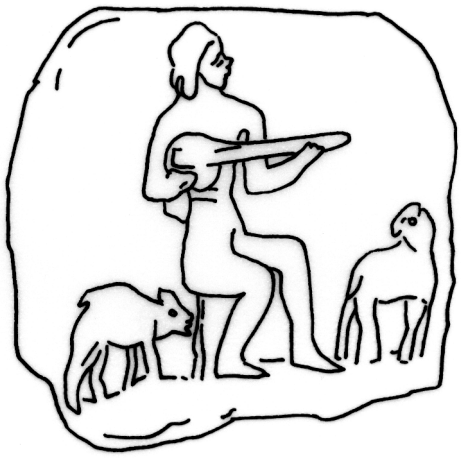


Plate 31, stamped terracotta from Khafage. Period IV. 252.

IV/247-short lute.

Plate 32, stamped terracotta from Mari. Period IV. 247.

IV/373-elusory short lute with hanging tassels.

Plate 33, impression from black calcite seal cylinder, and detail. Iran. Period IV. 373.

IV/457-elusory short lute.

Plate 34, impression from lapis lazuli seal cylinder, and detail Isin/Larsa. Period IV. 457

IV/409-elusory short lute.

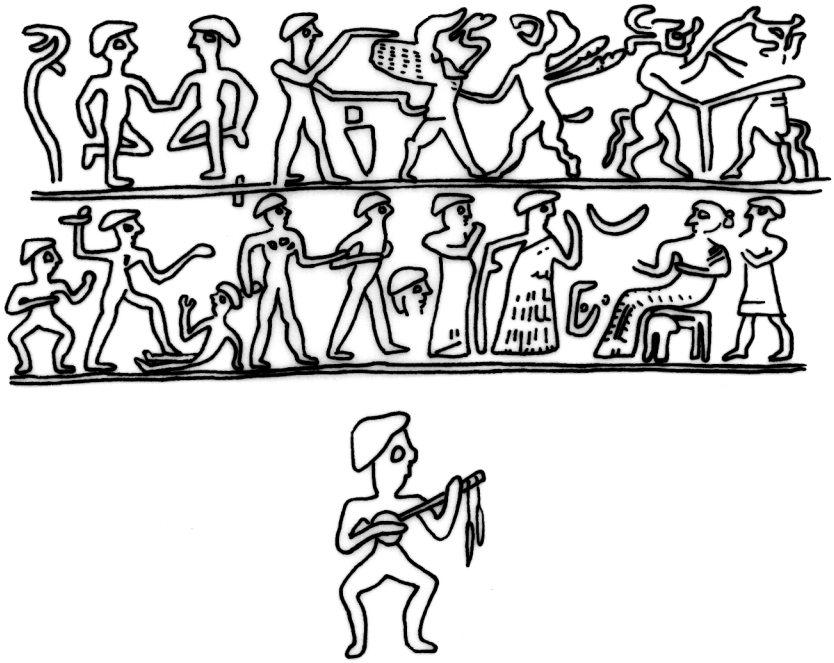


Plate 35, impression from chlorite seal cylinder from Mari, and detail. Period IV. 409

IV/231-small lute.

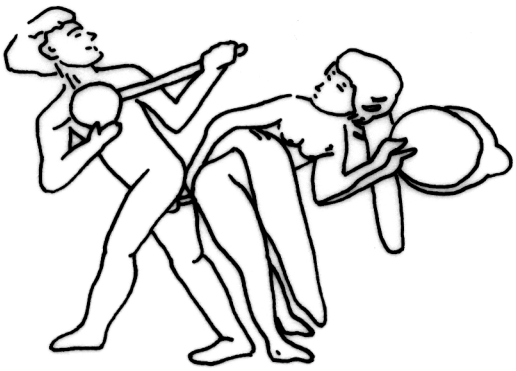


Plate 36, stamped terracotta from Larsa. Period IV. 231

IV/249-wide-bodied lute.

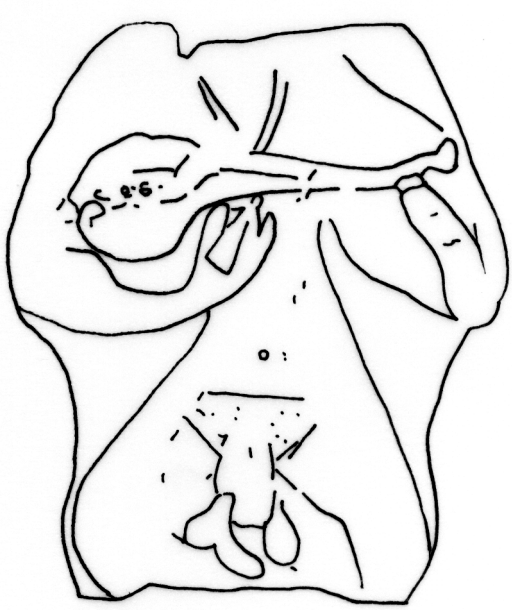


Plate 37, stamped terracotta from Iran. Period IV. 249

IV/219-oblong-bodied lute with tassels.

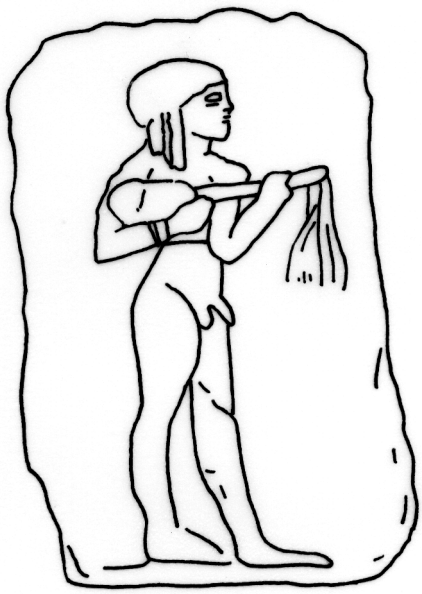


Plate 38, stamped terracotta, Babylonian. Period IV. 219

IV/342-lute with marks on soundboard.

Plate 39, stamped terracotta from Tell Mamabaqat, Syria. Period IV. 342

IV/232-long-necked lute.

Plate 40, kudurru (boundary) stone relief from Susa, Iran. Period IV. 232

IV/233-concave-sided lute with tassels.

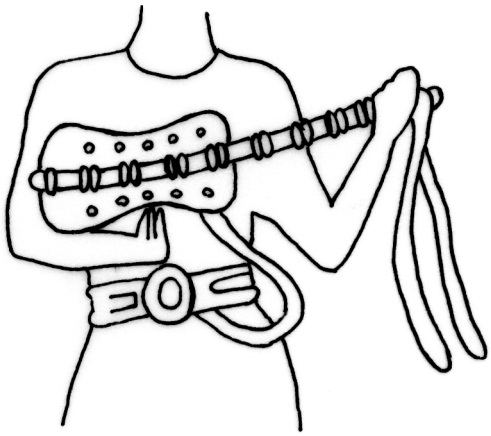


Plate 41, orthostat from Alaca Hüyük. Period IV. 233

V/256-lute and lyre.

Plate 42, impression from quartz seal cylinder. Kassite. Period V. 256

Whilst the lute is played right-handedly the lyre is played left-handedly as a result of the composition of the seal. There are cases where the lyre is seen played in this fashion, especially by women, but the lute, in all cases, is played with the right hand plucking the strings. The inscription reads: 'Terimanni, son of Izkur-Shidada, ... , eunuch (?) of Inanna, servant of Kurigalzu.'

V/244-long-necked lute with frets and crossed tassels.

Plate 43, engraved bronze vase. Iran. Period V. 244

V/245-long-necked lute with crossed tassels.

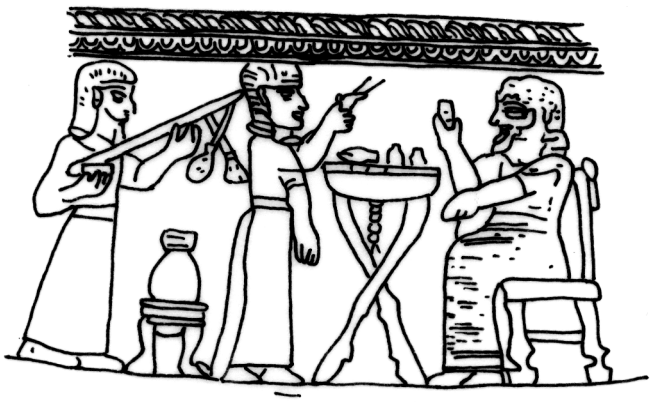


Plate 44, engraved bronze from Iran. Period V. 245

V/246-long-necked lute with crossed tassels.

Plate 45, engraved bronze from Iran. Period V. 246

The three Iranian long-necked lutes depicted above, Plates 43, 44 and 45 show another style of long-necked instrument where frets are visible in some cases and with two crossed hanging tassels which subsequently may indicate that the instrument was provided with only two strings.

VI/411-long-necked lute with long hanging and crossed tassels.

Plate 46, stone relief from Karchemich. Period VI. 411

VI/412-long-necked lute with long and crossed hanging tassels.

Plate 47, stone relief from Karchemich. Period VI. 412

VI/413-long-necked lute with long crossed hanging tassels.

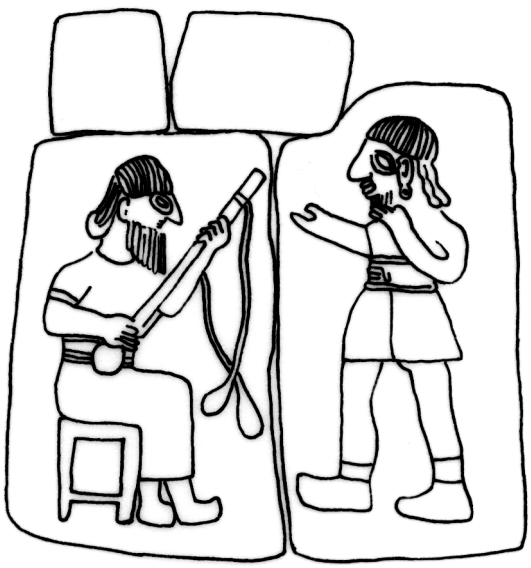


Plate 48, stone relief from Zincirli. Period VI. 413

VI/414-long-necked lute with two hanging tassels.

Plate 49, stone relief from Nimrud. Period VI. 414

VI/234-long-necked lute with long crossed hanging tassels.

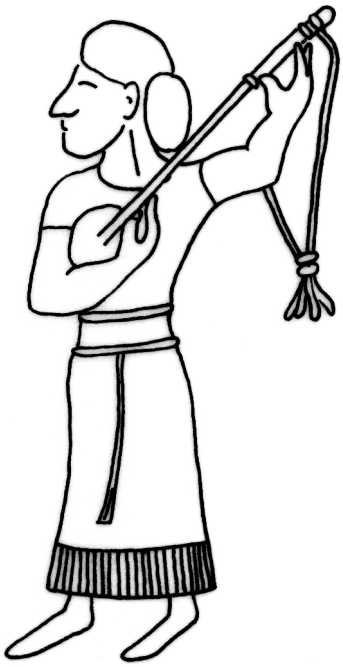


Plate 50, stone relief from Karchemich. Period VI. 234

The instruments shown above in Plates 46, 47 48, 49 and 50 come from Carchemich and from Zincirli. They all have a long neck in the Iranian manner and display two long hanging tuning tassels, crossed in all cases but one. The left hand of the lutanists is always placed at the top of the neck and this tells us that they would have been played in what we can call the first position, if we compare with violin positions. They are all plucked with the right hand but there are no traces of plectra.

VII/500-lute with soundboard holes.

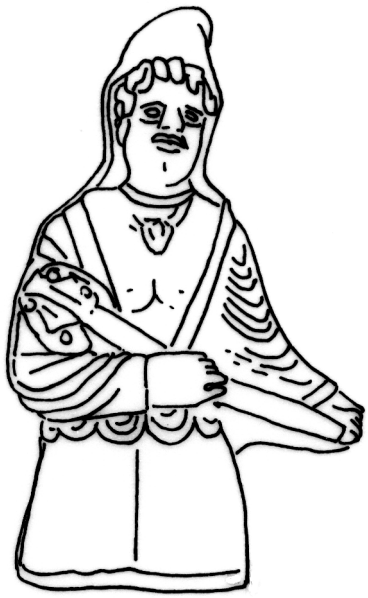


Plate 51, terracotta statuette from Lattakia, Syria. Period VII. 500

VII/266-small lute.

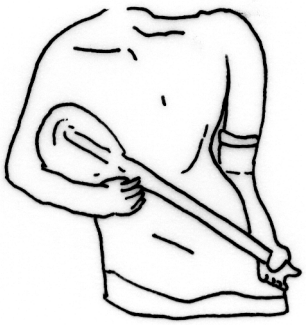


Plate 52, terracotta statuette. Seleucid. Period VII. 266

VII/264-short lute.

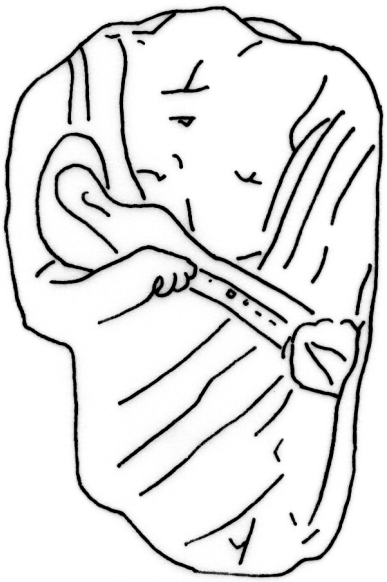


Plate 53, terracotta statuette. Seleucid. Period VII. 264

VII/263-short lute.

Plate 54, terracotta statuette. Seleucid. Period VII. 263

VII/260-lute with soundboard holes.

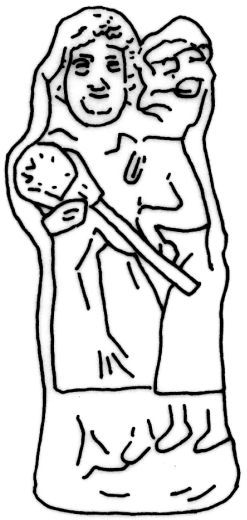


Plate 55, terracotta statuette. Seleucid. Period VII. 260

VII/261-short lute.

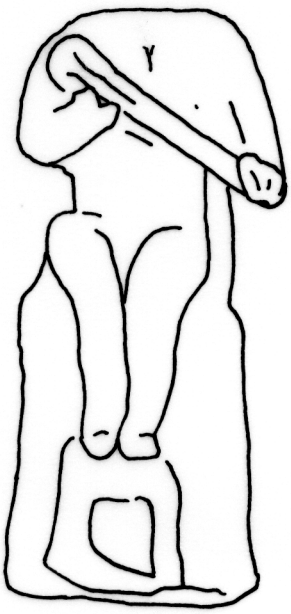


Plate 56, terracotta statuette. Seleucid. Period VII. 261

VII/265-round-bodied lute.

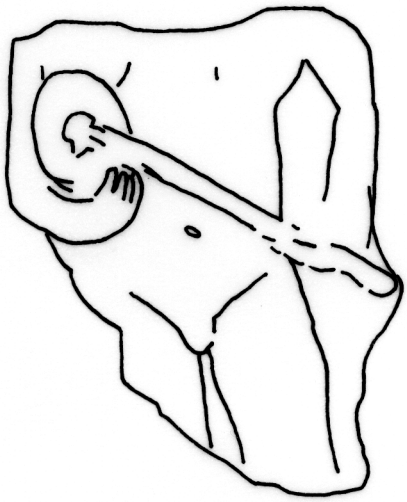


Plate 57, terracotta statuette. Seleucid. Period VII. 265

VII/241-large-bodied lute.

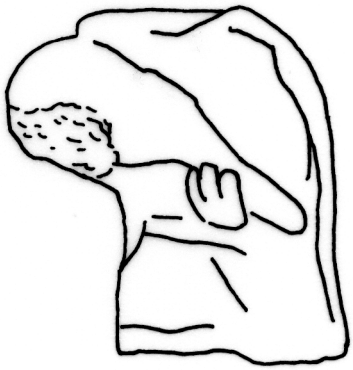


Plate 58, terracotta statuette. Seleucid. Period VII. 241

VII/239-oval-bodied lute.

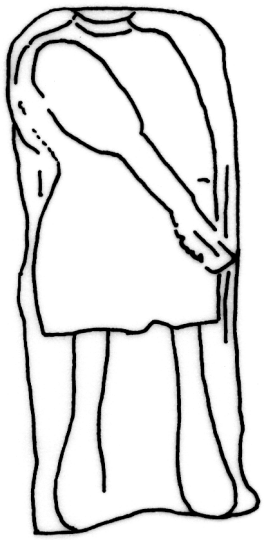


Plate 59, terracotta statuette. Seleucid. Period VII. 239

VII/267-large lute.

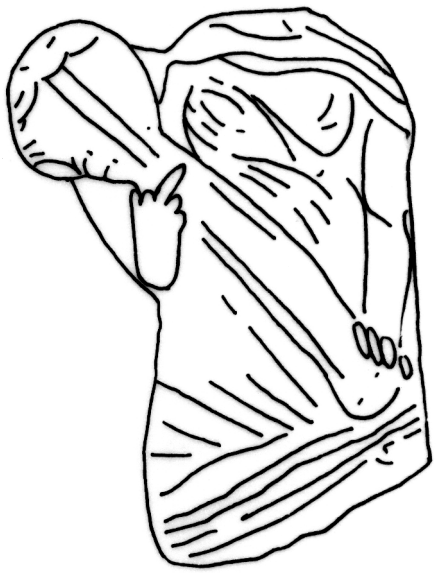


Plate 60, terracotta statuette. Seleucid. Period VII. 267

Lutes at period VII are characterised by the angle at which they are played. In all cases their necks point to the ground. There are no more hanging tassels and it is possible that by the fifth century BC tuning pegs were generally used. There is no indication as to the number of strings but the width of the neck would tend towards the possibility that there were four. This would give two octaves if the instrument had three frets and the strings were tuned a fourth apart from one another as seen with lutes a millennium later.

BOOK III

Organology

IV - Aerophones

Table of contents

Organology 347
Philology 348
Tonometry 349
Iconograpgy

List of illustrations

A number placed at the end of a caption corresponds to the iconographic classification of the author.

Plate 1, stone relief from Khafage. Period II. 195 350
Plate 2, painting. Period IV. 188 350
Plate 3, bronze bowl. Period V. 173 350
Plate 4, impression from chalcedony seal cylinder. Period VI. 211 350
Plate 5, ivory pixis from Nimrud. Period VI. 145 351
Plate 6, stone relief from Carchemich. Period VI. 178 351
Plate 7, terracotta statuette. Seleucid. Period VII. 204 351
Plate 8, terracotta statuette. Seleucid. Period VII. 203 352
Plate 9, terracotta statuette. Seleucid. Period VII. 196 352
Plate 10, terracotta statuette from Larsa. Period VII. 190 352
Plate 11, terracotta statuette. Seleucid. Period VII. 202 353
Plate 12, terracotta statuette. Seleucid. Period VII. 200 353
Plate 13, terracotta statuette. Seleucid. Period VII. 198 353
Plate 14, terracotta statuette from Lattakia, syria. Period VII. 349 354
Plate 15, terracotta statuette. Seleucid. Period VII. 187 354
Plate 16, terracotta statuette. Seleucid. Period VII. 197 354
Plate 17, terracotta statuette. Seleucid. Period VII. 41 355
Plate 18, terracotta statuette. Seleucid. Period VII. 381 355
Plate 19, terracotta statuette. Seleucid. Period VII. 201 355
Plate 20, terracotta statuette. Seleucid. Period VII. 205 356
Plate 21, terracotta statuette. Seleucid. Period VII. 207 356
Plate 22, terracotta statuette. Seleucid. Period VII. 208 356
Plate 23, terracotta statuette. Seleucid. Period VII. 209 357
Plate 24, terracotta statuette. Seleucid. Period VII. 210 357
Plate 25, terracotta statuette. Seleucid. Period VII. 185 357
Plate 26, terracotta statuette. Seleucid. Period VII. 189 358

Organology

Wind instruments came before strings and succeeded percussion. Their classification as a group of musical instruments presents a problem as some of them would have been more akin to a tool than a musical instrument. Indeed, horns and trumpets would have been used as military means of communication. In an urban environment horns[1] or whistles would have emphasised orders and it would have been the same in schools, building sites, at the temple to call the worshippers and generally whenever mass communication was needed, not to mention pastoral and other rural activities. It is therefore difficult to identify aerophones as being either musical or practical if they are not iconographically or contextually defined.

Organology can help identify what function they held. It is more likely that a pipe, with enough holes to produce a scale, would have been used for musical purposes rather than a trumpet as depicted in a hunting or a battle scene. Basically there are only two types of wind instruments in the Ancient Near East which can safely be associated with music, only the flutes and the reed pipes. Trumpets, olifants and other *šofars* may have had some part to play in certain pieces but it is doubtful in the light of volume imbalance that would have resulted. It is true however that some stringed instruments have been described as very noisy but it is my assumption that these so called strings were indeed percussion used for either military marching or for specific temple rituals and had nothing to do with artistic music *per se*.

The *nanše* Hymn[2] mentions the ibex horn, the *adara* which accompanies string, percussion instruments and singers. It must be added, however, that early trumpets had much less dynamic than its modern equivalent but this was also the case with early stringed items. Thus it was all kept in proportion. Philology comes with a list[3] of reed pipes[4]:

1 Ali, F., *Letter Collection* 113, line 3.
2 Heimpel, 1981, line 44.
3 Hh. 9, 237-242 + gap D.
4 The determinative 'gi' precedes items made from reeds. Sumerian GI, Akkadian *qanû*.

Philology

Sumerian	Akkadian	Translation
gi-zi-gíd-gíd	*sassanu*	long reed?
gi-zà-mí		reed harp ?
^{giš}GI-GID$_2$	*malīlu*	long reed?
^{giš}GI-GID$_2$	*embūbu*	wood-reed instrument
gi-gù-nun-di		reed instrument
gi-gíd		long reed
gi-bu		ibidem
giš-sír		ibidem
gi-dim		short reed
gi-di-da		side flute[1]
gi-DI	*šulpu*	
gi-i-lu-BALAG.DI	*kisu/ratu*	lament instrument
gi-ér-ra	*qan bikīti*	ibidem
	ḫālilu	piping sound of the gi-gid[2]
TIGI	tigu	
IMIN-E		seven holed

An Ur III text mentions gi-gíd instruments made of various metals such as gold and silver[3] . The *Keš* Temple Hymn 115[4] tells of a bull's horn, called si-am-ma which made the sound of gum-ga, a crushing? sound. There is a rare expression of horn-blowing, si gù ra[5] , Sumerian SI, Akkadian *qarnu*, meaning 'horn'.

The late Professor Legrain of the University Museum at Philadelphia provided Galpin[6] with the exact measurements of the Ur pipes unearthed by Woolley[7] in the late twenties. An attempt in calculating what scale they would have given has been made. One of the three

1 MSL 7, 47-49, and MSL 9, 183.
2 See CAD and AHw.
3 Limet, H, *Métal*, 207 f.
4 TCS III, 174.
5 Horn sounding like being hit by a 'the breaking of wind', textually.
6 *The Music of the Sumerians... op. cit.*
7 Ur Excavations Report, II, p. 258.

pipes is perfect except that about 3 millimetres at the mouth piece end has broken away. They are too fragile to attempt any straightening but, allowing for this, the measurements are as follows:

Tonometry

Length 270 millimetres, internal diameter 4 millimetres.
Hole 1 (the lowest) distance 237 millimetres
Hole 2 distance 218
Hole 3 distance 188
Hole 4 distance 156
(The distance is that from mouth-piece to upper edge of hole)

This results in the following figures, in musical cents:

0-145-401-724-1200

This does not say much but if corrections in relation to a hypothetical length missing at the mouth-piece that was estimated as about 20 cents, then we have:

0-120-380-700-1200

Now the figure of 120 could be corrected as 119.44 which is the ratio between the god-numbers for Ištar and Šakkan/Nergal, 15:14 = 119.44; 380 could be corrected as 386 which is the ratio of Enlil to Ea, 50:40 = 386, the just major third; 700 could be corrected to 702 which is the ratio of Sîn to šamaš, 30:20 = 702, the just fifth.

The resulting scale: 0-119-386-702-1200, which can be noted as: E-F-G#-B-E, shows the enneatonic nature of the system as the 'f ' is the only stranger to the harmonic structure of the series but then it resolves as 'e' after having been sounded in the tritone b-f.

Iconography

II/195-horizontal pipes.

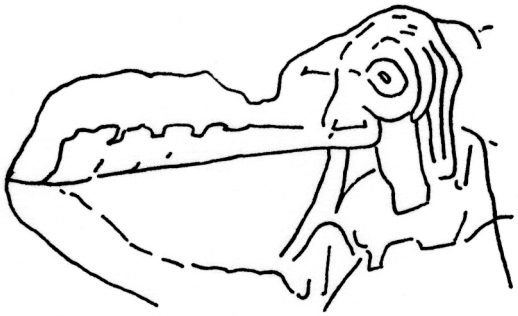


Plate 1, stone relief from Khafage. Period II. 119

IV/188-horn player and dancer.

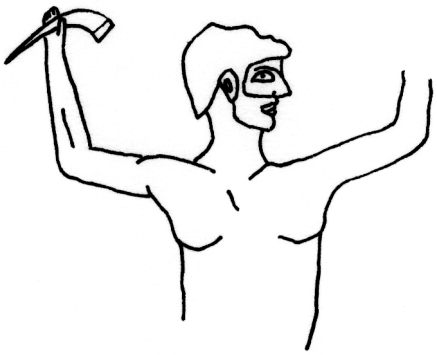


Plate 2, painting. Period IV. 188

VII/173-double-pipes.

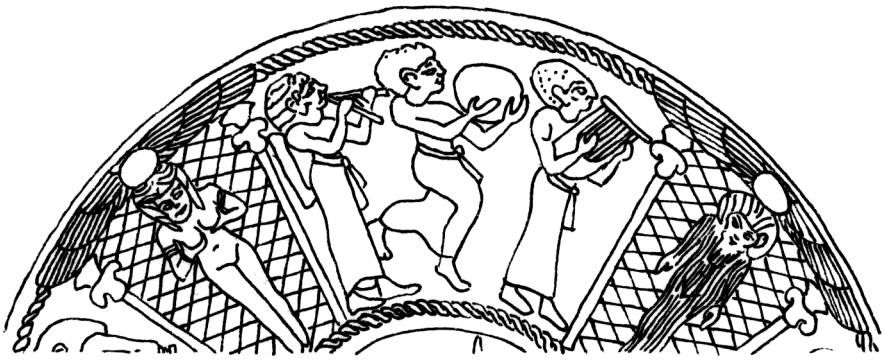


Plate 3, bronze bowl. Period V. 173

VI/211-dog flautist.

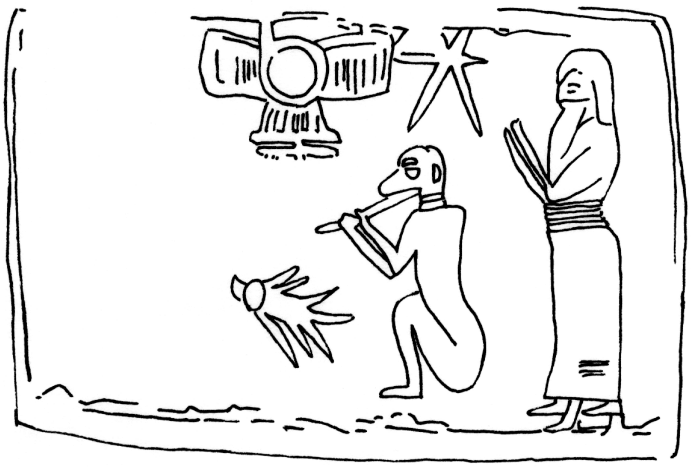


Plate 4, impression from chalcedony seal cylinder. Period VI. 211

Inscribed: 'Son of .....: other than the valiant god ....., who has produced such a son?'

VI/145-double pipes.

Plate 5, ivory pixis from Nimrud. Period VI. 145

VI/178-double pipes.

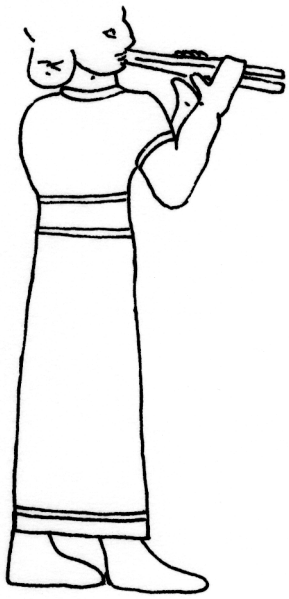


Plate 6, stone relief from Karchemich Period. VI. 178

VII/204-vertical pipes.

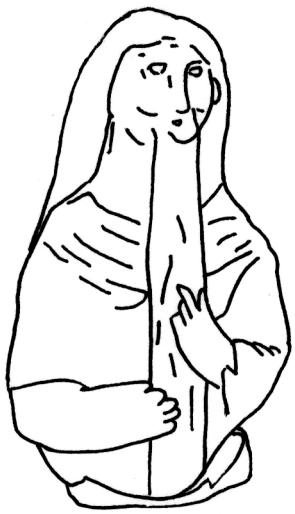


Plate 7, terracotta statuette. Seleucid. Period VII. 204

VII/203-vertical pipes.

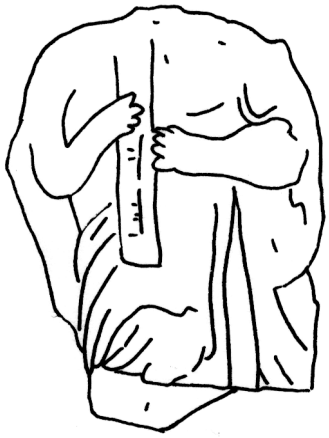


Plate 8, terracotta statuette. Seleucid. Period VII. 203

VII/196-vertical pipes.

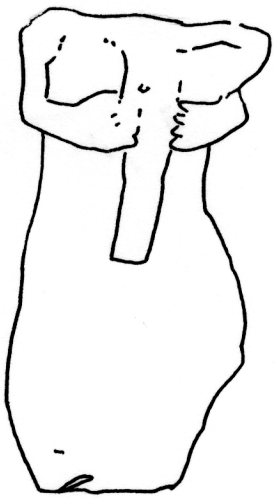


Plate 9, terracotta statuette. Seleucid. Period VII. 196

VII/190-vertical pipes.

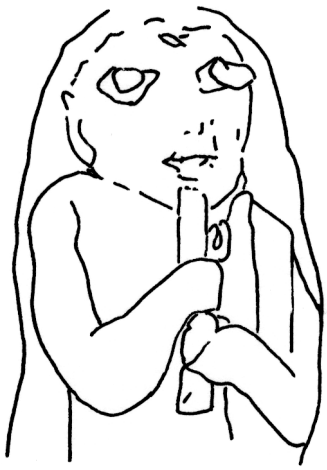


Plate 10, terracotta statuette from Larsa. Period VII. 190

VII/202-vertical double-pipes.

Plate 11, terracotta statuette. Seleucid. Period VII. 202

VII/200-vertical double-pipes.

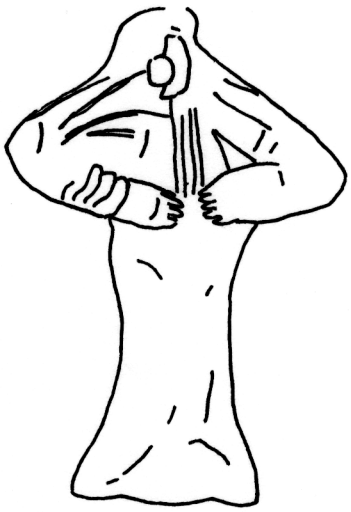


Plate 12, terracotta statuette. Seleucid. Period VII. 200

VII/198-vertical double-pipes.

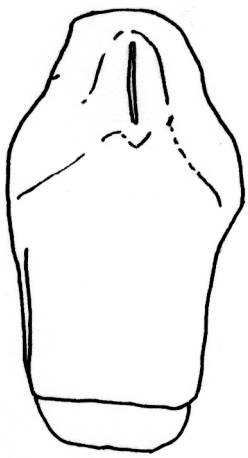


Plate 13, terracotta statuette. Seleucid. Period VII. 198

VII/349-vertical double-pipes.

Plate 14, terracotta statuette from Lattakia, syria. Period VII. 349

VII/187-vertical double-pipes.

Plate 15, terracotta statuette. Seleucid. Period VII. 187

VII/197-vertical double-pipes.

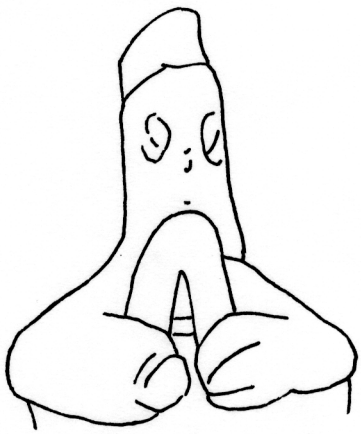


Plate 16, terracotta statuette. Seleucid. Period VII. 197

VII/41-vertical double-pipes and timbrel.

Plate 17, terracotta statuette. Seleucid. Period VII. 41

VII/381-vertical double-pipes and timbrel.

Plate 18, terracotta statuette. Seleucid. Period VII. 381

VII/201-panpipes.

Plate 19, terracotta statuette. Seleucid. Period VII. 201

VII/205-panpipes.

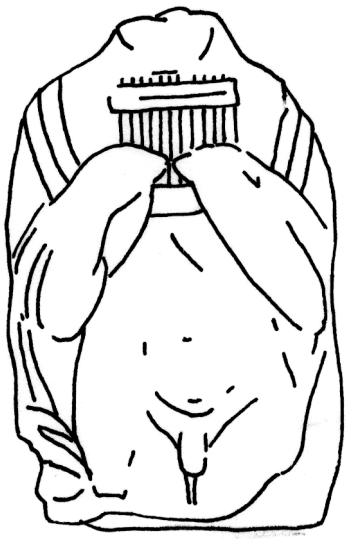


Plate 20, terracotta statuette. Seleucid. Period VII. 205

VII/207-panpipes.

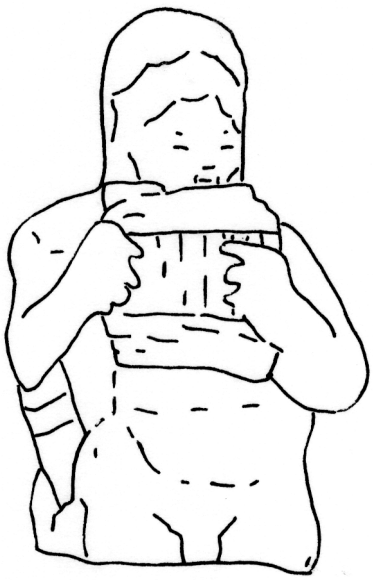


Plate 21, terracotta statuette. Seleucid. Period VII. 207

VII/208-panpipes.

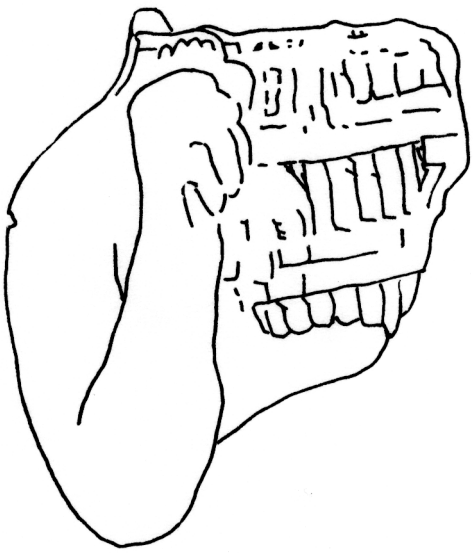


Plate 22, terracotta statuette. Seleucid. Period VII. 208

VII/209-panpipes.

Plate 23, terracotta statuette. Seleucid. Period VII. 209

VII/210-panpipes.

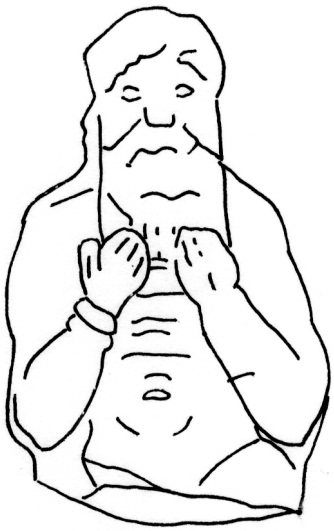


Plate 24, terracotta statuette. Seleucid. Period VII. 210

VII/185-panpipes.

Plate 25, terracotta statuette. Seleucid. Period VII. 185

VII/189-panpipes.

Plate 26, terracotta statuette. Seleucid. Period VII. 189

BOOK III

Organology

V - Percussion

Table of contents

Organology 362
Philology 362
Iconography 365
Classification of percussion 365
Index to periods 365

Table of illustrations
Tables

A number placed at the end of a caption corresponds to the iconographic classification of the author.

Plate 1, impression from seal cylinder. Niniveh 407 *365*
Plate 2, impression on jar shoulder. Hama, Syria 408 *366*
Plate 3, impression from limestone seal cylinder. Tell Suleimeh 459 *366*
Plate 4, painted pottery 183 *366*
Plate 5, impression from clay cylinder. Mesopotamian 410 *367*
Plate 6, impression from greenstone deal cylinder. Akkadian 458 *367*
Plate 7, impression from seal cylinder. Cappadocian 431 *368*
Plate 8, stamped terracotta. Larsa 80 *368*
Plate 9, impression from seal cylinder of brown stone. Tyre, Lebanon 432 *368*
Plate 10, clay tablet. Erech 167 *369*
Plate 11, impression from seal cylinder. Ur 430 *369*
Plate 12, impression from serpentine seal cylinder. Akkadian 460 *370*
Plate 13, impression from seal cylinder. Akkadian 277 *370*
Plate 14, stone relief. Tello/Girsu 144 *370*
Plate 15, stone relief from Tello/Girsu 154 *371*
Plate 16, stone relief. Tello/Girsu 153 *371*
Plate 17, Funerary stone from Tello/Girsu 150 *372*
Plate 18, stone relief from Tello/Girsu 161 *372*
Plate 19, stone relief from the stele of Ur-Nammu in Iraq 141 *372*
Plate 20, basalt relief from Carchemich 165 *373*
Plate 20a, terracotta 700 *373*
Plate 21, terracotta 82 *374*
Plate 22, terracotta 81 *374*
Plate 23, terracotta 100 *374*
Plate 24, terracotta 101 *374*
Plate 25, terracotta 102 *374*
Plate 26, terracotta 103 *374*
Plate 27, terracotta 104 *375*
Plate 28, terracotta 99 *375*
Plate 29, terracotta 98 *375*
Plate 30, terracotta 97 *375*
Plate 31, terracotta 96 *375*
Plate 32, terracotta 94 *375*
Plate 33, terracotta 105 *376*
Plate 34, terracotta 106 *376*
Plate 35, terracotta 107 *376*
Plate 36, terracotta 108 *376*
Plate 37, terracotta 109 *376*
Plate 38, terracotta 110 *376*

Plate 39, terracotta 111 *377*
Plate 40, terracotta 112 *377*
Plate 41, terracotta 113 *377*
Plate 42, terracotta 114 *377*
Plate 43, terracotta 115 *377*
Plate 44, terracotta 116 *377*
Plate 45, terracotta 117 *378*
Plate 46, terracotta 118 *378*
Plate 47, terracotta 119 *378*
Plate 48, terracotta 120 *378*
Plate 49, terracotta 121 *378*
Plate 50, terracotta 122 *378*
Plate 51, terracotta 123 *379*
Plate 52, terracotta 124 *379*
Plate 53, terracotta 125 *379*
Plate 54, terracotta 126 *379*
Plate 55, terracotta 127 379
Plate 56, terracotta 128 *379*
Plate 57, terracotta 129 *380*
Plate 58, terracotta 130 *380*
Plate 59, terracotta 131 *380*
Plate 60, terracotta 132 *380*
Plate 61, terracotta 133 *380*
Plate 62, terracotta 134 *380*
Plate 63, terracotta 135 *381*
Plate 64, terracotta 136 *381*
Plate 65, terracotta 137 *381*
Plate 66, terracotta 138 *381*
Plate 67, terracotta 139 *381*
Plate 68, terracotta 140 *381*
Plate 69, terracotta 146 *382*
Plate 70, terracotta 79 *382*
Plate 71, terracotta 78 *382*
Plate 72, terracotta 84 *382*
Plate 73, terracotta 83 *382*
Plate 74, terracotta 85 *382*
Plate 75, impression from seal 458 *383*
Plate 76, impression from seal 8 *383*
Plate 77, bronze vase 400 *383*
Plate 78, terracotta 168 *384*
Plate 79, plaque 147 *384*
Plate 80, shell plaque 179 *384*
Plate 81, Ur royal tombs 88 *385*
Plate 82, Ur Royal tombs 89 *385*
Plate 83, Ur Royal tombs 87 *385*
Plate 84, Ur Royal tombs 90 *385*
Plate 85, clappers 149 *385*
Plate 86, clappers 151 *385*
Plate 87, ivory pixis from Nimrud 145 *386*
Plate 88, impression from seal cylinder 277 *386*
Plate 89, stamped terracotta from Kiš and detail 137 *386*

Organology

The purpose of percussion is the emphasis of rhythm. Musical rhythm is inherent in man. It reassures as it derives from the beat of the mother's heart which originally taught the foetus all the subtleties of emotions with its variations of tempo and rhythm. Rhythm is so important to man because it is the primordial expression of life and that the absence of it is death. It follows that binary rhythms preceded ternary ones since all man's natural movements are binary. It is thus most probable that the first manifestations of music came as organised percussion and that in the course of time the voice and other instruments were added. To this day people dance to the sound of the drums being comforted by their relationship to the beat of their intra-uterine memories.

Philology

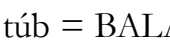
The logography of percussion instruments stems from three Early pictographs, namely:

lid = ÁB = *arḫu*

ša = ^{giš}NA$_5$ = *pitnu*

li = LI.LI.ÌS = *lilissu*

Generally, they compound with other signs to generate the corpus of the percussion group. The sign for lid does not carry any meaning of percussion *per se*, except perhaps for the cow's hide which would have covered its head (but we would have expected to find in its place a determinative such as kuš = leather). Nevertheless it is a sign allowing for compound inclusions such as túb = BALAG.(DI) = *balaggu*, which is itself a doubling of the sign ša = gišNA5 = *pitnu* which means 'string' or 'soundbox'.

Thus ÁB including ŠA + ŠA = túb = BALAG as  = LILIS: *lilissu*, was probably the kettledrum on the grounds that the Uruk pictograph for ša is the stylisation of such an instrument. The kettle-drum is also written with the sign LI , which can be read as LI.LI.ÌS = *lilissu*, another stylisation for the kettledrum. The sides were straightened as cuneiform strokes replaced curves. The classical form of the sign li resembles ŠA sufficiently to raise the probability that the pictographs were confused at some point of their palaeography.

The pictograph ÁB compounded with lìb gives ÙB = *uppu* which also bears the meaning of kettledrum. The same sign also reads as ŠÉM = *ḫalḫallatu* and further when ÁB is compounded with ME + EN = it also reads as $ŠEM_4$ = either *ḫalḫallatu* or *manzû.*

Thus the terms ÙB = *uppu* ; MEZE = *manzû*; LI.LI.ÌS = *lilissu* and LILIS = *lilissu* are all related to the kettledrum so may indicate variations in the organology or in the provenance. Both ŠÉM. and $ŠEM_4$ relate to other drums on the basis of their distinct phonology.

Other terms add up to a complex list of percussion instruments and related items such as the ^{kuš}GU4, gal = *gugallu*. 'greatbull', drum with hide head[1]; gišÀ.LÀ = *ibidem* but with wood; the ÙB.TUR[2] = small drum; ÙB.ZABAR[3] = bronze drum; BALAG = *balaggu* hour-glass-drum; the BALAG.TUR[4] = small hour glass drum, the ^{giš}MEZ.MÁ.GAN.(NA) = *musukannu* 'tree of Magan' which was the wood used for stretching hides; making stretching pegs; perhaps tuning wedges or pins. The *ušu* had the same meaning as did the *maštu* but for bronze ones. *Sikkāti* meant drumsticks[5]. Specialised verbs included SÌG = *maḫāṣu*, to hit; *raṣānu*, also to hit; $ŠI_7$-GI_4-GI_4 = *šagāmu*, to resound; *šakānu*, to play; DÚB-DÚB = *tarāku*, to beat; other instruments: a-da-ab = *adapu* ; tigi = *tigû*; sà-am-sà-am = *samsammu* .URUDU.NÍG.KALA.GA is a Sumerian cryptograph for the Akkadian *tigû*. That the BALAG-DI was circular is attested by its Akkadian form, *timbu*, 'ring' and by Sumerian GIŠ GAM BALAG-DI, Akkadian *kippat timbuti*.

1 In late Akkadian rituals. See Livingstone, *opus cit*., 172:5, 178:45.
2 Schiel, Revue d'Assyriologie, xvii, p 49.
3 Langdon, American Journal of Semitic Languages xxxix, p 171.
4 Schiel, *op.cit*.
5 In the *kalû* ritual.
6 Heimpel, (1981) 84.

The *Nanše* Hymn[1] has urudu.gur10.tur to describe 'small copper sickles' which are known from various depictions. They would have accompanied strings and drums[2]. We have an urudu-kin-tur, the 'copper-frog instrument[3]'. Akkadian rituals mention a URUDU. NÍG. KALA. GA = Akkadian *nigkalagû* which probably were cymbals[4] associated with the worship of the gods *Ninšar* and *Nergal*. A lexical text[5] has a GIŠ.ŠÀ.MIN.DI, Akkadian *tikitlû*, probably for a gourd-rattle. GIŠ.PA.PA-*é-pa-na*, Akkadian *tāpalu*, may have meant wooden clappers mounted on sticks and PA.PA, Akkadian *ṣinna/etu* would have meant bronze and wooden ones. Another type of clappers called *kiskilātu* were played by entertainers known as *kurgarrû*.

Another word, *kamkammatum* also being a term for ring, leads to the probability that it was the equivalent of the Greek *psytharā*. We see this idiophone on the *Nimrud* ivory at the British Museum[1] . This consists of a small rectangular frame with bars crossing its width, approximately 10 of them. The bars would have held rings or jingles of metal some 20 on each bar and the item would have been played by holding it high with the left hand whilst the right would have tapped the frame to shake its rings. It was a kind of rattle that we see later on an Apulian vase *circa* 360 BC2 . The average size given by West is 60 centimetres long by 18 wide fitting the Nimrud example.

1 Rashid (1984) Abb. 15, 16.
2 Civil (1987) 27.
3 Livingstone, *opus cit*., 172:5, 178:44.
4 Hh VII B.
1 BM 118179; Barnett, R.D, *The Nimrud Ivories London,* (1957) 78-9, 191, Pl. 17-17; Rimmer, 40, Pl. viib; Aign, B, *Die Musikinstrumente des ägäischen Raumes bis um 700 vor Christus* (Frankfurt am Main, 1963) 158; Zancani Montuoro, P, *Atti e memorie della Società Magna Grecia*, 34f. and pl. xiv. It was initially thought to be a zither. Other models are seen on three Lebanese terracotta from Kharayeb and date from the third century BC, see Chélab, M.H, *Bull. Mus. Beyrouth* 10 (1951-2), 38; 11(1953-4), pls. xlii-xliii.See also West, M.L, *The Orphic Poems* 17-19.
2 West, *opus cit*., p 126.

Iconography

Classification of percussion

A dance
B percussion
- I kettle-drums
- II hour-glass drums
- III large timbrels
- IV small timbrels
  - a) round
  - b) square
- V others and idiophones.

Index to periods

Period I = pre 3000
Period II = 3000-2334
Period III = 2334-2000
Period IV = 2000-1500
Period V = 1500-1000
Period VI = 1000-500
Period VII = 500 onwards

A dance

Dance is the most fundamental expression of rhythm. As such it is the most ancient reason for the practice of percussion with which it subsequently became indisociable, along with the music and lyrics added to it. What the patterns of dancing were is difficult to say but it is obvious that they reflected daily life.

A/407-dancers.

Plate 1, impression from seal cylinder. Niniveh. Period II. 407

A/408-dancers.

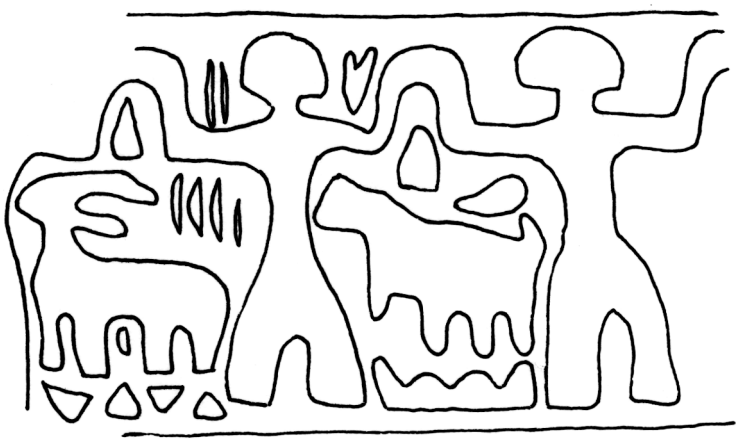


Plate 2, impression on jar shoulder. Hama, Syria. Period II. 408

A/459-dancers.

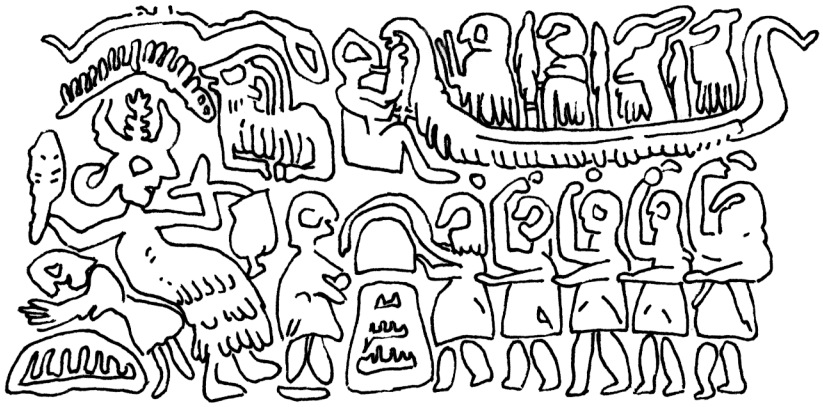


Plate 3, impression from limestone seal cylinder. Tell Suleimeh. Period II. 459

A/183-dancers.

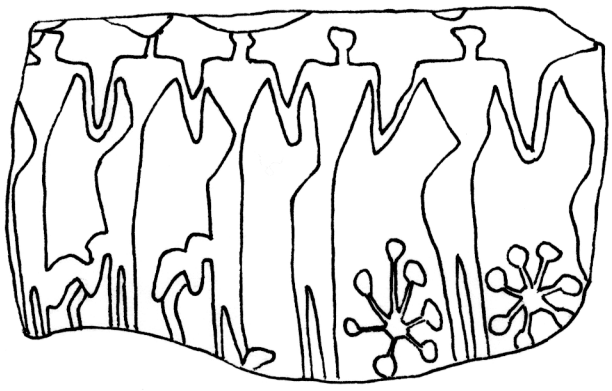


Plate 4, painted pottery. Period II. 183

A/410-dancers.

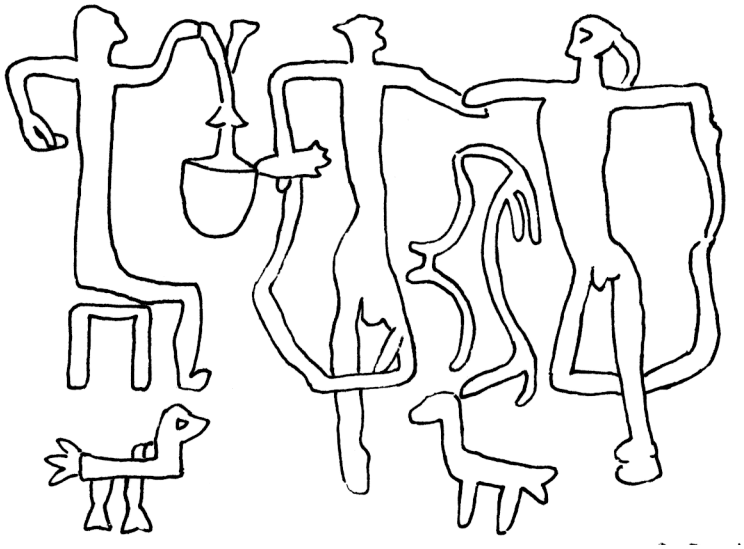


Plate 5, impression from seal cylinder. Mesopotamian. Period IV. 410

I/458-small kettledrum

Plate 6, impression from greenstone seal cylinder. Akkadian. Period III. 458

The kettledrum shown above rests on a stand, probably a tripod. A square timbrel leans against its right leg. The rim at the top of the soundbox may be metal which would be pushed down as the barrel of the instrument becomes wider and so stretching the skin. It would have then been secured in place by means of pegs which are also shown. In these scenes, instrumentalists are usually ignored by the other characters who seem more interested in libations than the music which accompanies them. In the present case the characters turn toward the musician with their right arms raised in a gesture of approval or appraisal. For the purpose of the composition of the seal the musician has his left arm shown raised. It is possible that the seal in question belonged to the musician due to the unusual nature of the scene. The tablet is inscribed with *Šu-ilišu meluḫḫa 'interpreter'*.

I/431-kettledrum

Plate 7, impression from seal cylinder. Cappadocian. Period IV. 431

The kettledrum may have been used as a portable altar for votive purposes as seems to be shown in the above illustrations. This is further confirmed by the use of adjectives qualifying the item with holiness and purity[1].

I/80-kettledrum.

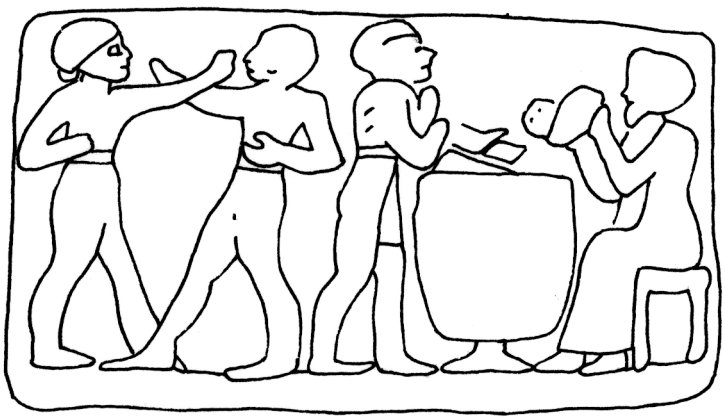


Plate 8, stamped terracotta. Larsa. Period IV. 80

This larger instrument shows that the kettledrum was not only used for votive purposes but also as an accompaniment for pugilists.

I/432-kettledrum.

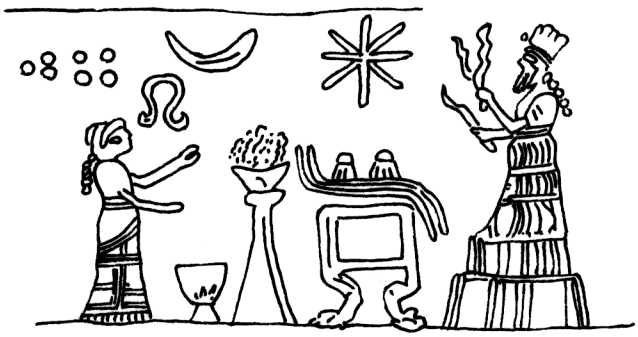


Plate 9, impression from seal cylinder of brown stone. Tyre, Lebanon. Period V. 432

1 See lexicon *sub lillissu.*

The small instrument which stands in front of the female character indicates a third type of kettledrum. Note the presence of the seven celestial bodies, the moon and the sun.

I/167- Large kettledrum.

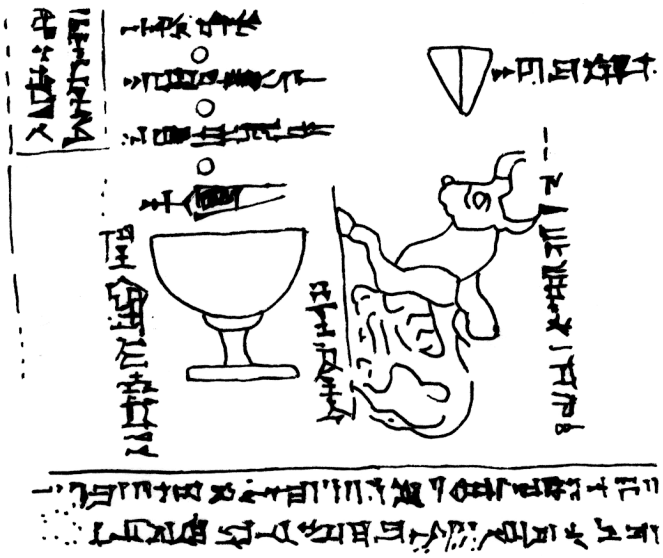


Plate 10, selection from clay tablet. Eruk. Period VII. 167

The text in this tablet is given *in extenso* together with complementary tablets in the lexical section under *kalû*. The cuneiform signs over the instrument leave no doubt as to the name of the instrument which it describes. Thus it is reasonable to attest that the instrument depicted is indeed the LILIS = *lilissu*, the kettledrum. The bull alongside is complementary to the explanation about the ritual which accompanied the replacement of its leather head.

II/430-hourglass-drum.

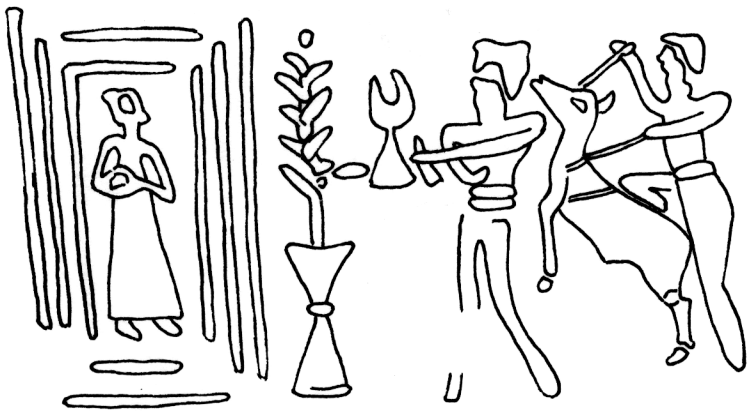


Plate 11, impression from seal cylinder. Ur. Period II. 430

The second type of drum in the Ancient Near Eastern instrumentarium is the hourglass shaped instrument above. It was also used for votive purposes. A tree of life grows from it. Philology leads to the word BALAG in its classical Sumerian form.

II/460-hourglass drum.

Plate 12, impression from serpentine seal cylinder. Akkadian. 460

Hourglass drums are often represented with a ring hanging from them which may have been used as a carrying devices although we have as yet seen no depiction of such usage.

II/277-hourglass drum.

Plate 13, impression from seal cylinder. Akkadian. Period II. 277

The hourglass drum is seen in the company of the zoomorphic lyre and jingles. It is possible that the rounded shape in the middle of the impression was another kettledrum.

III/144-large timbrel.

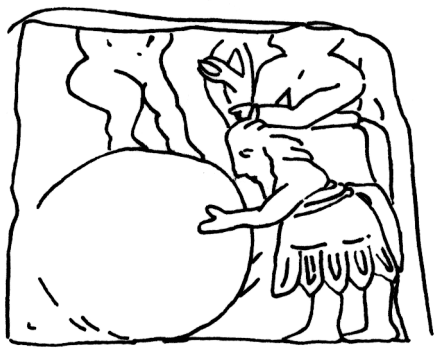


Plate 14, stone relief. Tello/Girsu. Period II. 144

The philology for this type of large side drum leads either to kušGU$_4$.GAL = *alû*, textually 'skin strong bull' or ^{giš}Á.LÁ = *alû*, textually Á = side, strength and LÁ = captive. There are thus two conflicting meanings: in the first is strength expressed by GU$_4$, 'bull' and GAL, 'big' and in the second weakness, as Á, 'side' and LÁ, 'captive' which is a side drum. The word for timbrel which is a small ^{kuš}GU$_4$.GAL would be *adapu.* which is discussed later.

III/154-large timbrel.

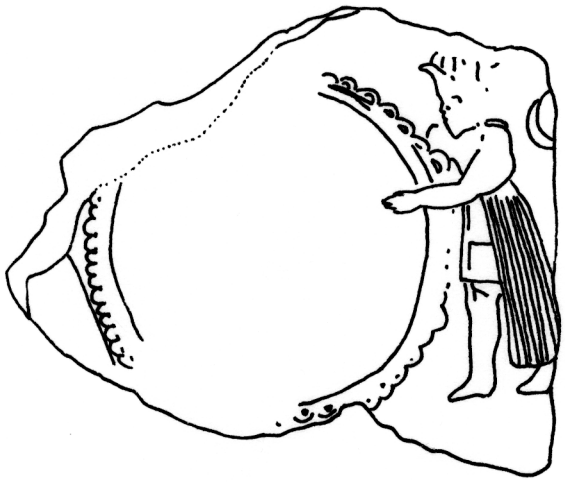


Plate 15, stone relief from Tello/Girsu. Period III. 154

The crenellation on the rim of the above model as well as on others shows the method for fixing the hide. Large wooden pegs would have held it in place whilst the wet skin was stretched. During the process of drying the hide would shrink and provide the right tension.

III/153-large timbrel.

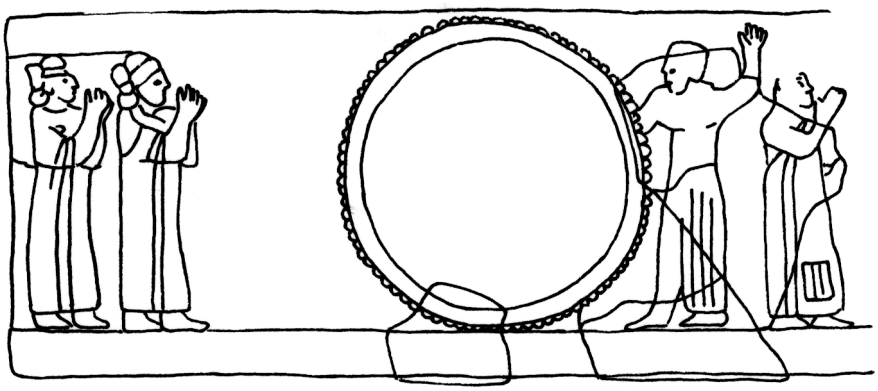


Plate 16, stone relief. Tello/Girsu. Period III. 153

This large timbrel was played with the bare hand rather than a stick.

III/150-large timbrel.

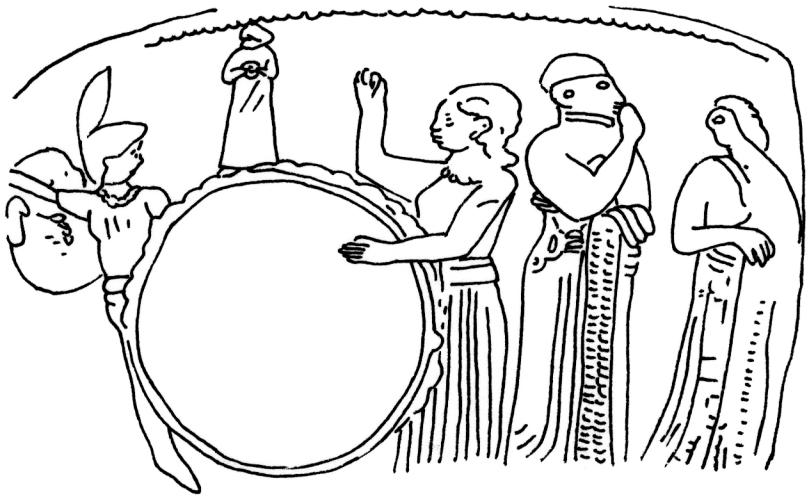


Plate 17, Funerary stone from Tello/Girsu. Period III. 150.

This medium sized timbrel has a character imposed on it, as that in 144, Plate 6.

III/161-large timbrel

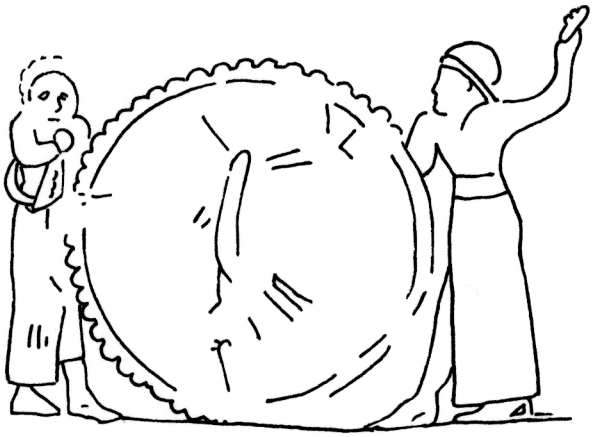


Plate 18, stone relief from Tello/Girsu. Period III. 161.

III/141-large timbrel.

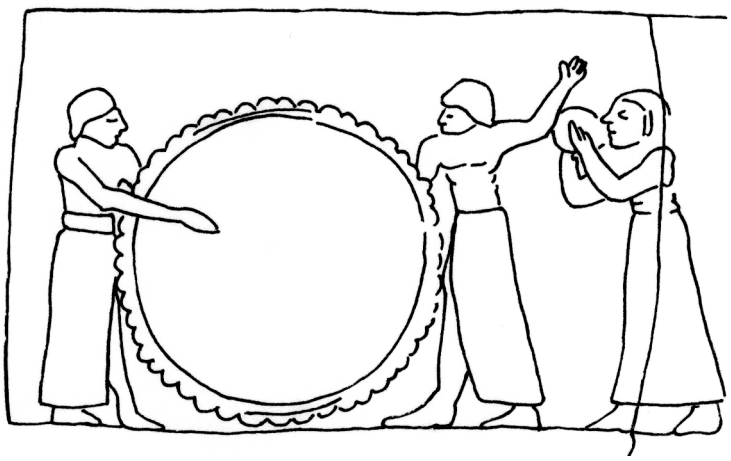


Plate 19, stone relief from the stele of Ur-Nammu in Iraq. Period III. 141.

Note the small timbrel to the right of the picture.

III/165-medium sized timbrel.

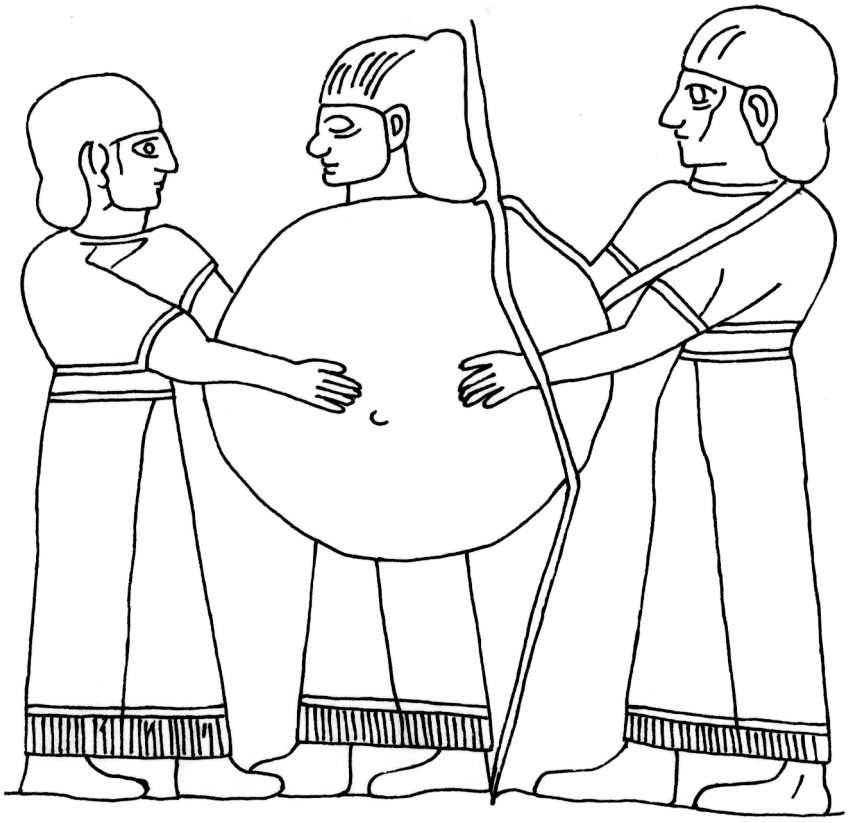
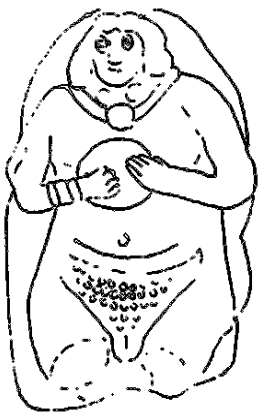
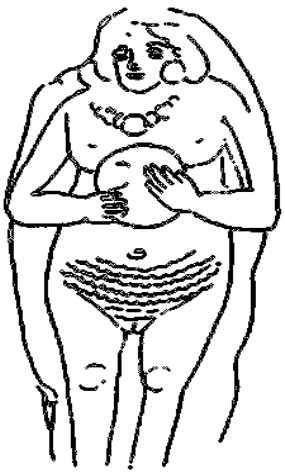


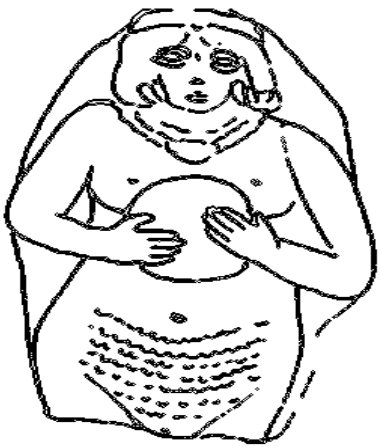
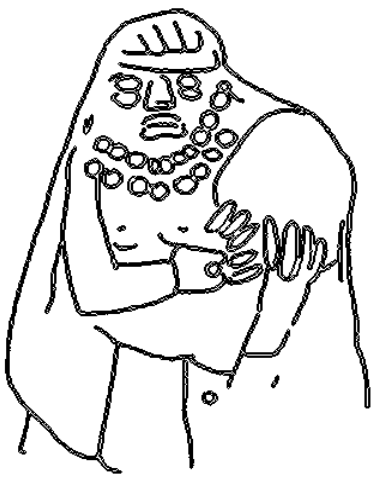
Plate 20, basalt relief from Karchemich. Period V. 165.

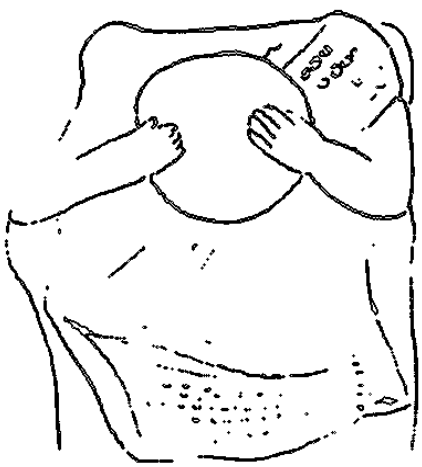
Medium sized timbrels were not provided with pegs to secure the hide. It would have been glued to the frame, as we see on the modern Moroccan genbri.

IVa/700-timbrel.

Plate 20a, terracotta. Period III. 700

IVa/82-timbrel.	IVa/81-timbrel.
Plate 21, terracotta. Period III. 82	Plate 22, terracotta. Period III. 81
IVa/100-timbrel.	IVa/101-timbrel.
Plate 23, terracotta. Period III. 100	Plate 24, terracotta. Period III. 101
IVa/102-timbrel.	IVa/103-timbrel
 Plate 25, terracotta. Period III. 102	 Plate 26, terracotta. Period III. 103

IVa/104-timbrel.	IVa/99-timbrel.
Plate 27, terracotta. Period III. 104	Plate 28, terracotta. Period III. 99
IVa/98-timbrel.	IVa/97-timbrel
Plate 29, terracotta. Period III. 98	 Plate 30, terracotta. Period III. 97
IVa/96-timbrel.	IVa/94-timbrel
Plate 31, terracotta. Period III. 96	 Plate Pl.ate 32, terracotta. Period III. 94

IVa/105-timbrel.	IVa/106-timbrel.
Plate 33, terracotta. Period III. 105	Plate 34, terracotta. Period III. 106
IVa/107-timbrel.	IVa. /108-timbrel
Plate 35, terracotta. Period III. 107	Plate 36, terracotta. Period III. 108
IVa/109-timbrel.	IVa/110-timbrel
 Plate 37, terracotta. Period III. 109	Plate 38, terracotta. Period III. 110

IVa/111-timbrel.	IVa/114-timbrel.

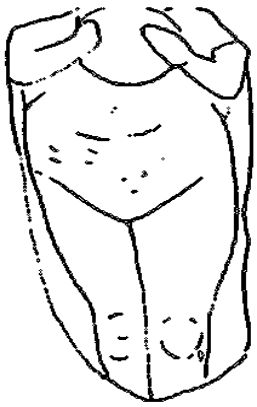



Plate 39, terracotta. Period III. 111.	Plate 40, terracotta. Period III. 112.
IVa/113-timbrel.	IVa/114-timbrel.

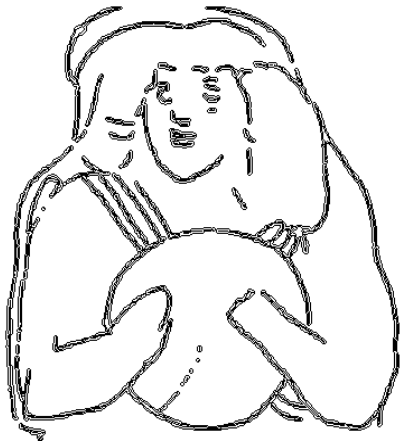
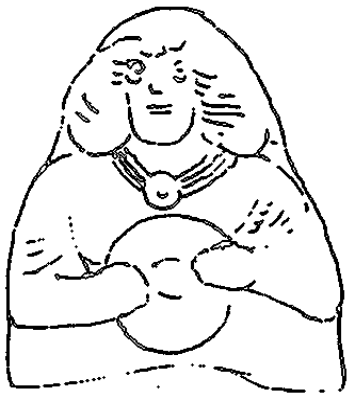
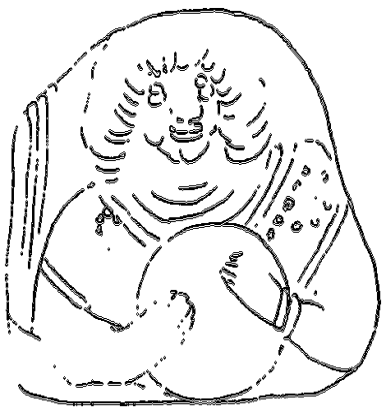
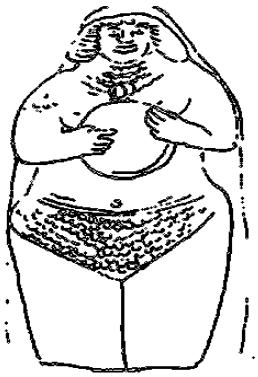

	

Plate 41, terracotta. Period III. 113.	Plate 42, terracotta. Period III. 114.
IVa/115-timbrel.	IVa/116-timbrel.
	
Plate 43, terracotta. Period III. 115.	Plate 44, terracotta. Period III. 116.

IVa/117-timbrel.	IVa/118-timbrel.
	
Plate 45, terracotta. Period III. 117.	Plate 46, terracotta. Period III. 118.
IVa/119-timbrel.	IVa/120-timbrel.

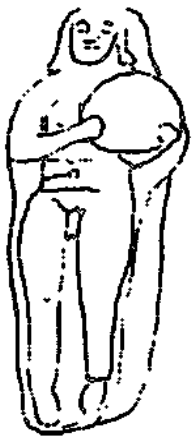



Plate 47, terracotta. Period III. 119.	Plate 48, terracotta. Period III. 120.
IVa/121-timbrel.	IVa/122-timbrel
Plate 49, terracotta. Period III. 121.	Plate 50, terracotta. Period III. 122

IVa/123-timbrel.	IVa/130-timbrel.

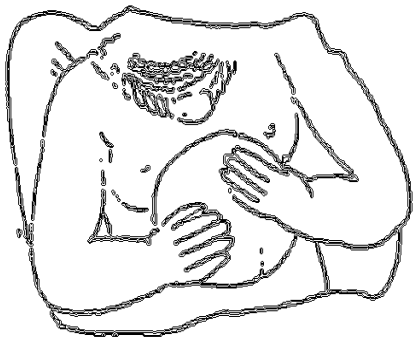
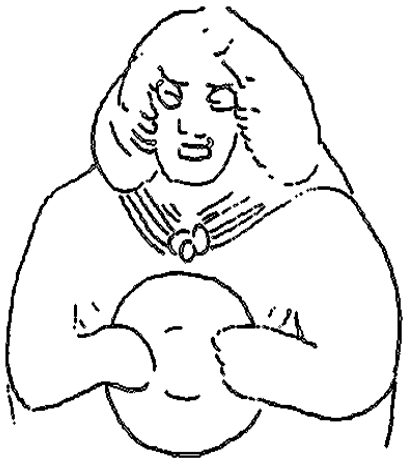
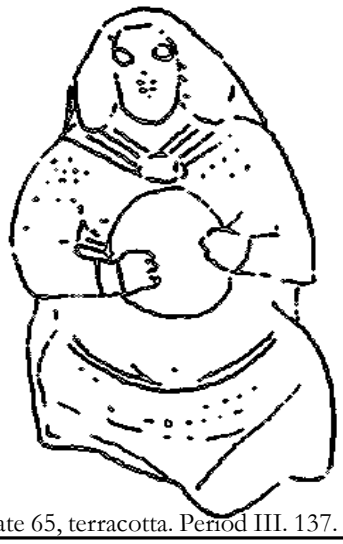
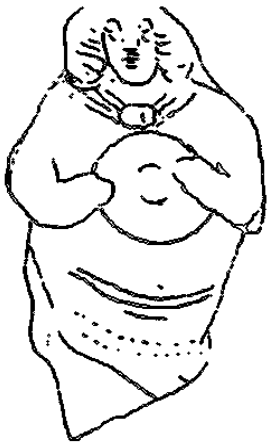
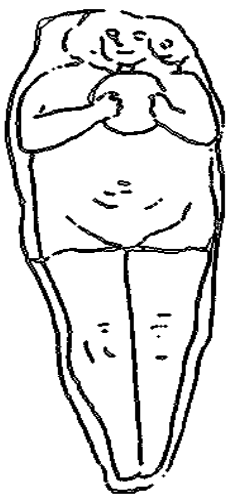
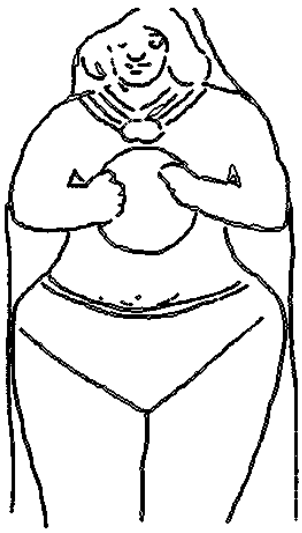
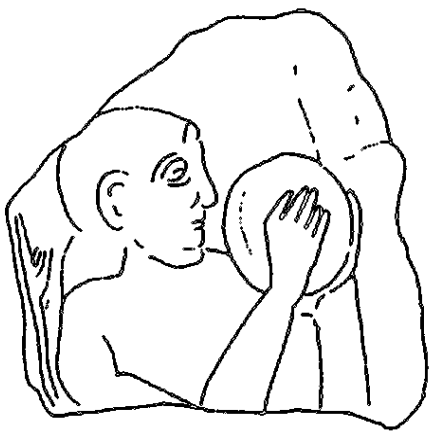
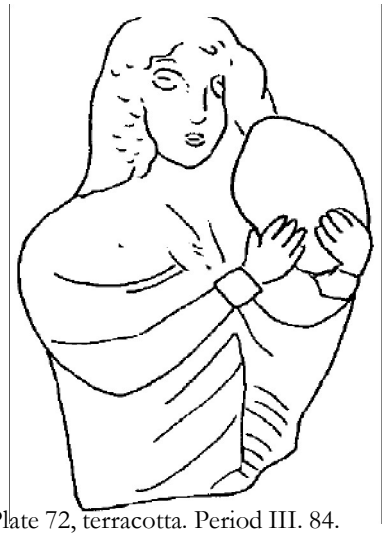
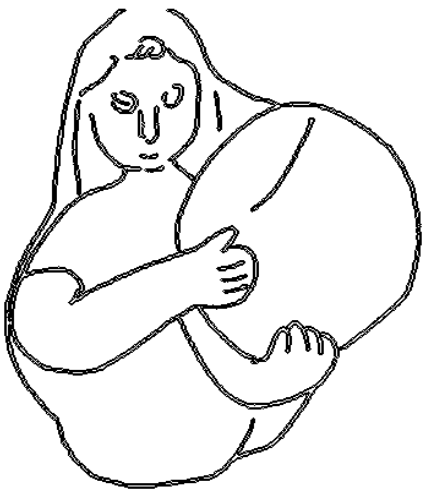



Plate 51, terracotta. Period III. 123.	Plate 52, terracotta. Period III. 124.
IVa/125-timbrel.	IVa/126-timbrel.
Plate 53, terracotta. Period III. 125.	Plate 54, terracotta. Period III. 126.
IVa/127-timbrel.	IVa/128-timbrel.
Plate 55, terracotta. Period III. 127.	Plate 56, terracotta. Period III. 128.

IVa/129-timbrel.	IVa/124-timbrel.
Plate 57, terracotta. Period III. 129.	Plate 58, terracotta. Period III. 130.
IVa/131-timbrel.	IVa/132-timbrel.
 Plate 59, terracotta. Period III. 131.	Plate 60, terracotta. Period III. 132.
IVa/133-timbrel.	IVa/134-timbrel.
Plate 61, terracotta. Period III. 133.	Plate 62, terracotta. Period III. 134.

IVa/135-timbrel.	IVa/78-shoulder timbrel.
Plate 63, terracotta. Period III. 135.	Plate 64, terracotta. Period III. 136.
IVa/137-timbrel.	IVa/138-timbrel.
 Plate 65, terracotta. Period III. 137.	 Plate 66, terracotta. Period III. 138.
IVa/139-timbrel	IVa/140-timbrel
 Plate 67, terracotta. Period III. 139.	 Plate 68, terracotta. Period III. 140

IVa/146-shoulder timbrel.	IVa/79-shoulder timbrel.
Plate 69, terracotta. Period III. 146.	Plate 70, terracotta. Period III. 79.
IVa/136-timbrel.	IVa/84-shoulder timbrel.
 Plate 71, terracotta. Period III. 78.	 Plate 72, terracotta. Period III. 84.
IVa/83-shoulder timbrel.	IVa/85-shoulder timbrel.
 Plate 73, terracotta. Period III. 83.	Plate 74, terracotta. Period III. 85.

The series of Babylonian female timbrel players shown above share the same characteristics. There are generally naked with emphasis on the pubic hairs. They usually wear jewellery and have their hair done in the same style. It is not yet understood what the purpose of these statuettes was. They were related to some fertility cult and we would expect to find them in a nuptial environment.

IVb/458-square timbrel.

Plate 75, impression from seal. Period III. 458

IVb/8-square timbrel.

Plate 76, impression from seal. Ur. Period II. 8

IVb/400-square timbrel.

Plate 77, bronze vase. Period III. 400

V/168-knee slapping.

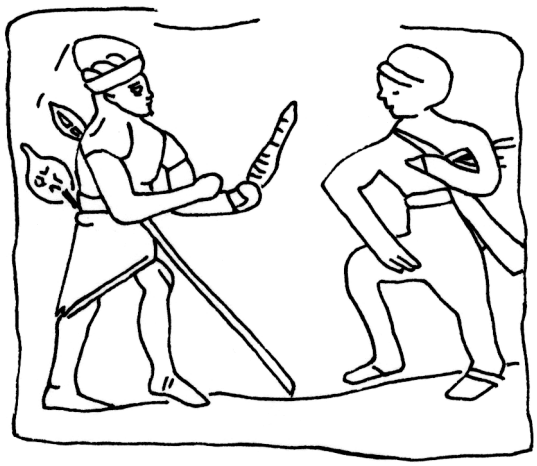


Plate 78, terracotta. Period III. 168

V/147-hand clapping.

Plate 79, plaque. Period II. 147

V/179-hand clapping.

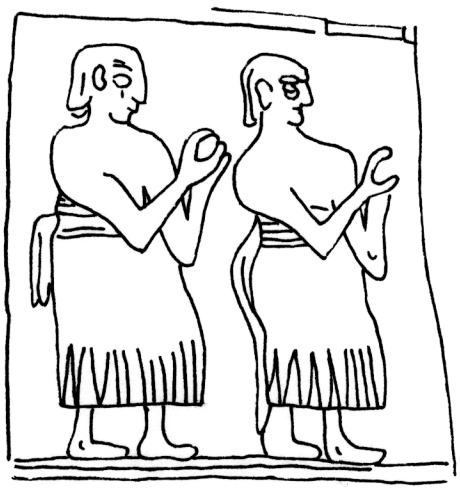


Plate 80, shell plaque. Period II. 179

V/88-small cymbal.

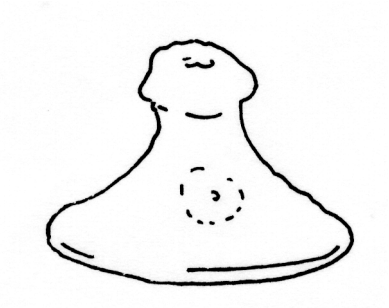


Plate 81, Ur royal tombs. Period II. 88.

V/89-small cymbal.

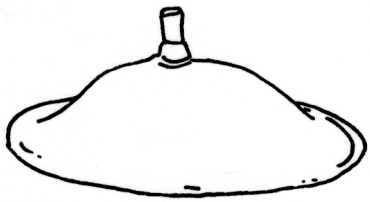


Plate 82, Ur Royal tombs. Period II. 89.

V/87-small cymbal.

Plate 83, Ur Royal tombs. Period II. 87.

V/90-small cymbals.

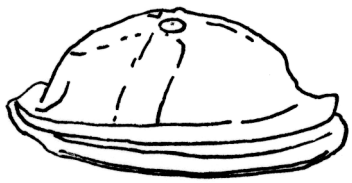


Plate 84, Ur Royal tombs. Period II. 90.

V/149-clappers.

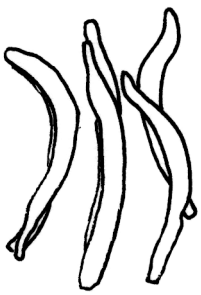


Plate 85, clappers. Period II. 149.

V/151-musician with clappers.

Plate 86, clappers. Period II. 151.

V/145-psithyra?

Plate 87, ivory pixis from Nimrud. Period VI. 145

V/277-rattles.

Plate 88, impression from seal cylinder. Period II. Akkadian. 277

V/237-jingles on lute neck.

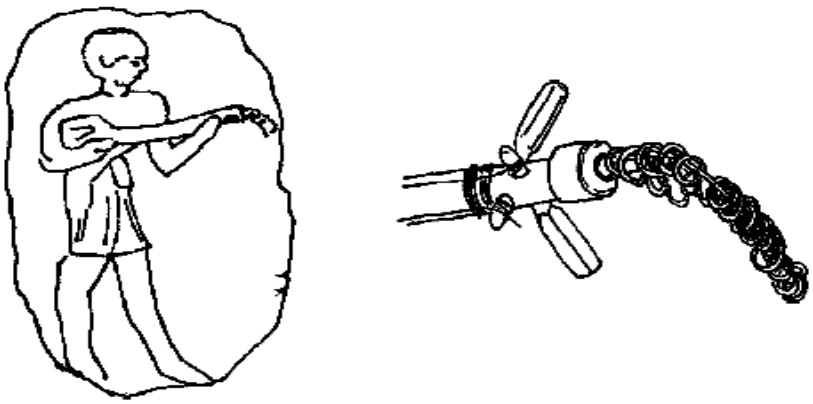


Plate 89, stamped terracotta from Kiš and detail. Period III. 237

The square timbrels shown in Plate 75, Plate 76, and Plate 77, would have been called A.DA.PÀ on the basis that a grain measure of similar shape had the same name.

BOOK IV

Lexicon

Lexical Index 455

Note to philologists and musicologists

This lexicon is not a work of philology but mainly a guide to words and locutions which constitute at present the lexical corpus of mesopotamian musicology. I have omitted all conventional signs of transliteration as whilst philologists will know how to refer to appropriate works, musicologists might find special charaters obnubilating. It is for the same reason that I have not written Akkadian in the conventional italics. Sources are given when relevant. Otherwise I shall advise reference to the Chicago Assyrian Dictionary. I have added some of the early Sumerian cuneiform signs whenever I felt that they may be of some use, either allegorically or ornamentally.

aballu

Substantive.
From Sumerian KA which is Akkadian babu meaning door, and Sumerian GAL, Akkadian rabu meaning big, tall.
a - KAGAL =abullu, therefore big door, that is the main door of a house, a palace, etc. b - Then abullu varies to aballu which means 'a list of laments', metaphorically to mean that this list was the opening, the ouverture of musical pieces. It also meansa list of lamentations composed in the style of ER, a form of which we know little.

abanu

Substantive.
Sumerian SA, Akkadian ser'anu, gidu, meaning muscle, sinew.
The word is preceded by the determinative 'uzu' to indicate that the word which follows is meat, and or related edible animal part. In the present case, the determinative is not present as the animal part used is not meat intended for feeding.

It is gut from animals, probably lamb, sheep, etc., from which musical strings are made.

Sum. LIMMU, Akk.erbettu - erbe and erbet = four.

Sum. TUR, Akk. seheru = to be small.

The Akkadian meaning varies from the Sumerian which simply states the position and the quality of the string.

a - Textually, 'Ea-created'. Note created by the divine intervention of the god Ea, probably to emphasise its importance in the scale.

b - The name of the fourth string of an unspecified stringed instrument and probably the fourth note of the mode of isartu.

abhinun

Textually: 'abundant-cow'. The name of a lyre.

adapu adapa

Substantive.

a - Either a percussion instrument, probably a square tambourine.

b - A form of song which would have been accompanied by the adapu-drum and hence took the name of the instrument. The Akkadian term appears in Middle Babylonian, 1500-1000 BC. It is a Sumerian loanword found in a lexical text as: urudu.adapa, the copper-adapa = adapu = mazuu.

The Sumerian determinative 'urudu', meaning copper, precedes the names of objects made of copper or which include some. This implies that this metal was an essential element in the making of the adapu Significantly a grain measure of the same shape as the adapu shared the same name. This provides an explanation for the presence of the Sumerian determinative urudu which would have otherwise been expected to be KUS, meaning leather, refering to the drum head or heads, if the drum was double-sided. Consequently the instrument would have had a square shape akin to the contemporary Moroccan duff or

would have had this shape at some period of its development.

The hypothesis for the presence of the determinative urudu to justify that the adapu may have been fitted with copperjingles is not sustainable insofar as we have as yet no iconographic evidence of such on drums. Furthermore names for surviving drums with jingles bear no homophony with the word adapu.

The philologic evidence that the adapu was a percussion musical instrument arises from its presence in the aforementioned lexical list between the terms lilissu and allatu.

However the Mesopotamian lexicographers did not clearly distinguish between certain stringed and certain percussion instruments, probably on the basis that the infrastructure in both is about the same: a drum-shaped skin-headed box, the soundboard of which, in the first case, is directly activated by hands or drumsticks. In the second it is indirectly activated by the vibrations of strings transmitted by means of a bridge. This terminological confusion in the distinction between stringed and percussion instruments survives, linguistically, today. This is seen with the French 'tambour', 'tambourin' and the English 'tambourine', all being percussion items, insofar as they do not relate to the stringed instrument as would be expected from their etymology: Sumerian 'bantur', and later, the Arabic 'tunbur'. The adapu may have survived in the Hebrew 'toph' and the Hindi 'duffde'. Regarding the Arabic 'duff' the square timbrel ascribed by the Arabian tradition to Tubal, the legendary coppersmith known in Sumerian as Tibira as its 'inventor', is self-explanatory for the determinative urudu. According to the kitab al-agani, Tuwais (632-710), who was the first musician to make a name under Islam, used nothing other than the square duff for the accompaniment of his singing. The adapu-songs were catalogued. In the following example, the fact that they were qualified by the adjective 'Sumerian' tells us that it was either the Sumerian language or the country of Sumer which qualified the song. From this it can be derived that these songs were either written in different languages or came from different regions: 'five Sumerian adapu -songs'.

adaru

Substantive.

A species of poplar. It is possible that the instrument in question was built of wood, but as we have elsewhere evidence of it being an animal horn played together with strings, percussion and singing, it is possible that this instrument was made of either material, or perhaps both, or that it was made of either material at different times.

aga susi

Substantive.

Sumerian, aga, Akkadian agu means crown.

Sumerian, si, Akkadian ubanu means finger but also qarnu, the horn. Sumerian susi, Akkadian ubanu, is also the name of a unit of measurement of length, about 16 millimetres. Two fingers would have equated to the Babylonian apotome which is 119 musical cents. The association of aga with susi and si: agu - ubanu - qarnu, equating to 'crown, - finger - horn, brings an interesting trilogy of acrocratic terms all symbols of authority and leadership. Then we have ubanu, the measurement unit. The Chicago Assyrian Dictionary meaning for the term is finger tip. This would have either described that the string of an instrument was played by means of finger-plucking, or nail-plucking, as opposed to its plucking with a plectrum.

aga balag

a - An assembly.

b - A hall of harps.

A performing monkey , probably a young musician, complains to his mother that he is locked up and poorly fed in the chief musician's house.

c - A group of harpists playing together.

ahulab

Adjective.

Describing the lugubriousness of certain pieces.

akkadita amnu

Textually: 'I have recorded the song list in Akkadian metres'

akkadu

Adjective.

The feminine is akkaditu.

A type of song in the Akkadian style.

Toponymy as well as names of instruments, or other names were used for the classification of songs and other musical pieces.

'I sang 26 songs in the Akkadian'.

'9 Sumerian, one Akkadian,10 to Ningisgida'.

alala

Interjection.

a - An exclamation of joy.

b - The refrain of a work song.

The interjection is Old and Middle Babylonian. It is written syllabically, often preceded by the determinative dingir meaning god. The alala as the refrain of a working song, would probably have had fertilising powers and if not it would at least have encouraged plowmen at their work: 'The king of Urartu's fallow field I brought back the xxx-song. I let his people intone again the call of the sweet alala-song'. 'He was desirous to provide the barren soil with rows of furrows and to have the plowmen singing the alala-song . It would have been the farmer's duty to sing the alala on behalf of a god: 'let Enkidu the farmer weep for you who praises your name with the sweet alala-song'. Let the farmer weep for you, who praises your name with the sweet alala-song'.

The farmer would lend his voice to the god:
'after the farmer-god has sang the alala-song in the country'

Gods would have needed higher approval to grant the privileges of the alala: 'without whom god x does not make the fields resound with the alala-song'.

The alala would have had magical powers. These would have been granted to or withdrawn from the farmer according to his behaviour: 'may his farmer breaking the oath not sing the alala-song in the field'.

Two gods are listed below with their intention to withdraw the privileges of the alala from someone: 'may god x and god y not grant the sweet alala-song as his fate'

The forage of the animals is abundant as a consequence of the fertilising powers of the singing of the alala:
'I deprived his country's commons of human voices, of the stamping of the cattle and sheep and of the sound of the sweet alala-songs.

Here again, the fertilising powers of the alala are obvious:
'the alala will stop everywhere in the land, there will be a famine among the people.

The enemy would have the ability to withdraw the magical powers of the alala: 'My enemies have made the alala disappear from my fields'.

There were rules with regards to irrigation in relation to the singing of the alala:
'He must not water the field on the seventh day of Tasritu as it is forbidden by god x, the lord of the alala-song'.

These alala-songs and their refrains were catalogued in quantity and quality:
'Eleven Akkadian alala-songs'.

The onomatopoeic character of the interjection alala is known in similar words in various languages. Especially in the Greek alala and the verb from it; the Latin Ululare and the Hebrew hll although this latter usually means 'to praise' and 'to acclaim'; the Arabic yallah, and Spanish ole.

The word has survived in French as 'ululer' and in English as 'to ululate'.

algasurru

Substantive.

a - A wooden plectrum.

b - or a drumstick.

The word is found in six occurences in a lexical list. Since the sign ra evokes percussion rather than plucking or scrapping it would seem more appropriate to relate the term to drumsticks rather than plectra or scrappers. However they do not relate to pegs as we have a distinct term for them.

anahu

Verb.

Old and Middle Babylonian.

To sing the inhu-song.

The verb unuhu has the same meaning.

The verb utannhu probably meant 'to produce a mourning sound'.

'They sing your praise' has the same meaning:

an lugalmu sadugazuse

The incipit of an incantation.

alu

Substantive.

A large round vertical wooden drum. Also a stringed instrument, probably the large boviform lyre.

The word appears in Standard and Neo-Babylonian, 1000-500 BC. It is a Sumerian loanword.

We find the word in a lexical list: wood-ala, wood-algar, big-balag, small-wood-balag, deep-big-wood, big-goose-wood-balag, perhaps with regard to the shape of the neck.

Other occurrences: small 'hand-held' wood-balag, leather-ala, curved-wood-ala, string-ala, string of the alu-drum, in which case the word alu refers to a stringed paradigm or possibly to snares if it refers to percussion.

The following quotation attests of its association with singing, percussion, and, or, with the accompaniment of stringed instruments: 'Songs are sung for you accompanied with the copper halhallatu, alu and timbuttu'. The alu was used as an instrument of praise: 'Let the chief singer sing your praise with the alu. The reciting of the oath is compared to the sound of the alu 'before the river'. 'The voice of the 'oath' demon before the river is like the voice of the alu. In this quotation, the power of the alu is compared to the sound of percussion rather than to the sound of strings. The singers praise the gods with the alu among other instruments. These are songs of joy and praise: 'Where the singers acclaim the gods with songs of joy and praise to the accompaniment of the lute, harp, the alu, gift to a naru singer in the shrine of the god Dunga'.

The alu was an instrument of great importance. It is known from the above quotations that it was used in the temple usually for the accompaniment of singing but, more specifically, with regards to songs of joy and praise. Its importance in rituals is made evident from its likening to the authority of the god Adad; to the sound of the oath which would have been of great importance. The alu was allowed to take oath. The volume intensity of the alu is indicated inasmuch as the instrument is said to overcome the roaring of the river and of the thunder. It is as loud as the barking of a dog. The string-alu was played alongside other instruments such as the balaggu and the timbuttu especially during the swearing of oaths: 'Oath sworn by the alu, the balaggu and the timbuttu'. Allusions to the volume intensity of the alu give an indication as to its size which must have been important. If we take it as a percussion instrument then we known that: a) there were only two types of large drums at all times in Mesopotamia; b) one of which was the kettledrum; c) the alu is philologically distinguished from the kettle-drum as we shall see later; thus the alu must have been the large vertical type. On the other hand the alu as a stringed instrument could only have been the large boviform lyre

anu rabu same u ersetu likribuka

The incipit of a blessing.

'Great Anu, may heaven and earth hallow you!',

'May the deities Enlil, Ea and Beletile hallow you joyfully! May both the gods Sin and Samas hallow you when you appear! May the deities Nergal and Sibi hallow you with strong hearts! May the Igigi gods of heaven and the Annunaki gods of earth hallow you! May the gods of the deep and the gods of the Holy Shrine hallow you! May they hallow you every day, month and year!'

apsamikku

Also apasamikku, apsamakku, apusammikku.

A regular concave sided tetragon.

Old and Middle Babylonian. It is a Sumerian loanword written as abzami, but ab meaning 'window, aperture' would make more sense than ab meaning cow, in an organological context.

arkammi

Substantive.

A percussion instrument part of the triad gis arkammi, galgaturi and huhupal. They usually are listed as the 'Instruments of Inanna'.

arahhu

Substantive.

A song.

Appears in Middle Babylonian. It is a Sumerian loanword that is seen only in one occurrence: 'one arahhu-song, Sumerian'. Perhaps a harvest song.

ariktu

Substantive.

A long flute.

Found in middle Babylonian in one occurrence only.

arkammi

Substantive.

A drum.

asar pitnu saknu

Emplacement within the musical span where a musical scale is set. This term would have been used for large harps with two or more octaves on which a choice of positioning of scales would have been possible. This would have been in relation to a specific order in which the melodies were to be played.

assinnu or kulu

Male prostitute or castrato-singer. Perhaps the eunuch singer of a harem.

astalu

A type of singer.

Textually, one, the first-middle-to enter. The term might also have qualified the function of a singer, a soloist, perhaps a barytone, if such classifications existed. We have no evidence of this, however. It is Middle Babylonian and a Sumerian loanword.

asipu

Substantive.

The feminine is asiptu.

An exorcist using incantations. A siptu incantation in religious and divinatory texts. Other forms indicate part of an incantation in divinatory and medical texts; part of an incantation in religious, divinatory and medical texts; incantation in religious texts; exorcist in religious texts; incantation in religious texts; exorcism in religious texts, exorcist in school texts, exorcist priest; pure, exorcist. In school texts: 'The exorcist recites the incantation, the exorcist wipes the patient with flour paste. The chief erib biti shall lead the torch from the temple tower along with the exorcist, the lamentation singers and the singers.' 'The ritual activities of the exorcists, the lamentation priests and singers together with all of the experts'.

asu

Adjective.

Also as found as wasu, feminine asitu, wasitu.

A solo singer.

The word appears from Old Akkadian and Babylonian onward. It is written syllabically and as esaggi. We find the adjective as: solo kalu-singer and kalu-singer of the chorus.

asu kisri

gala in Sumerian.

Adjective.

gala is written syllabically as usku.Whilst the word gala, kalu generally means priest, cantor, the signs us and ku have meanings of power: penis, founder, respectivelly. The sign da also carries an idea of power and ability. A type of singer of some importance

atnu

Substantive.

Also adnu

Sumerian sud, siskur.

Sumerian sud, Akkadian karabu means prayer, blessing; Sumerian siskur, Akkadian karabu, suppu and ikribu meaning blessing. Atnu or adnu equating to kizaza, Akkadian sukenu means to blow, to prostrate. Generally, it is word for prayer.

The word is Middle Babylonian.

basillatu

Substantive.

Also habasillatu.

A musical instrument. Perhaps a copper instrument.

bakka'u

Substantive.

A wailer or a professional mourner.

The term is Old Babylonian.

bakkitu

Sumerian ses.

Adjective, feminine.

Sumerian ses, Akkadian baku, to cry and ses, pasasu, to anoint, unction, a wailing woman.

balbale

A type of composition with lyrics.

The meaning of the complex is uncertain but the word bal equating to Akkadian palu, meaning dynasty, and qabu, to speak, gives an indication about the subject of the piece as well as to how it might have been executed: probably a declamation rather than a virtuoso piece.

The Sumerian myth of Dumuzi and Enkidu, the dispute between the Shepherd-God and the Farmer-God has been reconstructed from three tablets and fragments excavated in Nippur. They are dated from the end of the second millennium B.C. Samuel Noah Kramer has published the material in 1948 in the Journal of Cuneiform Studies. The present translation appears in Ancient Near Eastern Text, Edited by James B. Pritchard, 1969.

'Who is a maid, the stable . . .
The maid Inanna, the sheepfold . . .
Kneeling in the furrows . . .
Inanna . . .
A garment . . .
. . .
. . . I am not . . .
From . . .
. . . wife of the shepherd . . .
Her brother, the hero, the warrior, Utu

Says to the pure Inanna:
'O my sister, let the shepherd marry thee
O maid Inanna, why art thou unwilling?
His fat is good, his milk is good,
The shepherd, everything his hand touches is bright,
O Inanna, let the shepherd Dumuzi marry thee,
O thou who . . . , why art thou unwilling?
'Me the shepherd shall not marry,
In his new garment he shall not drape me,
When I . . . he shall not . . . me,
Me, the maid, let the farmer marry,
The farmer who makes plants grow abundantly,
The farmer who makes grain grow abundantly,
. . . (approximately 8 lines are destroyed.)
Me . . .
This matter . . .
To the shepherd . . .
The king of dike, ditch, and plow . . .
The shepherd Dumuzi . . .
. . . to speak . . .
'The farmer more than I, the farmer more than
I, the farmer what has he more than I?
Enkimdu, the man of dike, ditch, and plow,
More than I, the farmer, what has he more than I?
Should he give me his black garment,
I would give him, the farmer, my black ewe for it,
Should he give me his white garment,
I would give him, the farmer, my white ewe for it,
Should he pour me his prime date wine,
I would pour him, the farmer, my yellow milk for it,
Should he pour me his good date wine,
I would pour him, the farmer, my *kissim*-milk for it,
Should he pour me his . . . date wine,
I would pour him, the farmer, my . . . milk for it,
Should he pour me his diluted date wine,

I would pour him, the farmer, my plant-milk for it,
Should he give me his good portions,
I would give him, the farmer, my irtida-milk for them,
Should he give me his good bread,
I would give him, the farmer, my honey-cheese for it,
Should he give me his small beans,
I would give him, the farmer, my small cheeses for them;
After I shall have eaten, shall have drunk,
I would leave for him the extra fat,
I would leave for him the extra milk;
More than I, the farmer, what has he more than I?'
He rejoiced, he rejoiced, . . . on the riverbank rejoiced,
On the riverbank, the shepherd on the riverbank rejoiced ,
The shepherd, moreover, led the sheep on the riverbank.
To the shepherd walking to and fro on the riverbank,
To him who is a shepherd, the farmer, approached
The farmer Enkimdu approached.
Dumuzi, the farmer, the king of dike and ditch . . .,
In his plain, the shepherd in his [plain starts] a quarrel with him,
The [sh]epherd Dumuzi in his plain starts a quarrel with him.
"I against thee, O shepherd, against thee, O shepherd, I against thee
Why shall I strive?
Let thy sheep eat the grass of the riverbank,
In my meadowland let thy sheep walk about,
In the bright fields of Erech let them eat grain,
Let thy kids and lambs drink the water of my Unun canal.'
'As for me, who am a shepherd, at my marriage,
O farmer, mayest thou be counted as my friend,
O farmer Enkimdu, as my friend, O farmer, as my friend,
Mayest thou be counted as my friend.'
'I would bring thee wheat, I would bring thee beans,
I would bring thee . . . ,
O thou who art a maid, whatever is . . . to thee,
O maid Inanna, . . . I would bring thee.'
In the dispute which took place between the shepherd and the farmer,
O maid Inanna, thy praise is good.
It is a balbale.

balaggu

Sumerian balag

Substantive.

a - A stringed instrument of the harp family.

b - A percussion musical instrument, probably of the hour-glass type.

c - A type of song. The word appears in Old Akkadian, Middle Babylonian, Elamite, Old Babylonian and Middle Babylonian, from 2500 to 500 BC. It is a Sumerian loanword written syllabically and with the ideogram balag. It appears with variations as: wood-balag, curved wood-ala, curved wood-balag, curved judgement wood-instrument, leather-balag, leather judgement-balag, reed judgement shouting-prince.

The lexical list above is headed by the equation: balag = balangu.

The pictograph was probably a generic name. The instrument would have been a genus of the string family from which some types would have derived. These include two distinct instruments identified by their determinatives, either.'wood' or 'leather'. These helped distinguish the stringed from the percussion. The semeiology of the pictograph is interesting. It is known it was initially a stringed instrument since its Uruk sign is a pictograph representing a stringed instrument. The Djemdet Nasr sign shows that its pictograph stylising a stringed instrument has metamorphosed into a percussion one representing an hour-glassshaped drum. Both have the same phonetic value of tub which is more evocative of percussion than of a plucked string. However, the association of the sign balag with a specific string instrument is based exclusively on the Uruk pictograph and its similarities with three possible iconographic representations of the third millennium showing that the instrument was large. If this were the case it would have been the equivalent of our modern doublebass, the phoneme of which would be a self-evident onomatopoeia.

It is difficult to say which of the two determinatives gis, which means wood or kus .meaning leather, would have been the most appropriate to describe the stringed or the percussion type, since both materials would probably have been used in both instruments. However, had the determinatives described their soundboards, then, whilst leather would have been appropriate for both percussion and stringed

instruments, wood only could have suited the stringed instrument, not the percussion. Thus it is possible that gis determined the stringed paradigm and kus the percussion.

The lexical list above has gis gur balag = min, meaning curved wood-balag. In this instance, 'curved-wood' would agree with the shape of the neck of the stringed instrument as we note from the iconography.

The list continues with instruments preceded by the determinative kus. These would be percussion. The term balag is not only used for musical instrument but also for the type of lamentation which was accompanied by the instrument of the same name. From the Fara period onward, the professional mourner is known as the Sumerian balagdi, Akkadian sarihu.The balaggu is associated with temple singers and their singing: 'the temple singers sing a song to the accompaniment of the balaggu'. The leather-uppu and the pure-balaggu are used together for the worship of a female deity. There is no mention of voice or any other instrument in this context. The purity of the balag is cryptic:'they play for her upon the leather and pure-uppu, upon the pure balaggu. The halhallatu, the manzu and the balaggu are used together for the purpose of accompaniment. The balaggu is superior to the other two as it is said to be pure: 'to the accompaniment of the halhalattu, and the manzu and the pure-balaggu. The balaggu is said to be pure and loved by a female deity: 'the pure-balaggu which she loves'.

The quality of its playing is mentioned: 'they perform the balaggu-lament properly for her'. The balaggu-songs are used for the cult of Enlil: 'let us go to Enlil with prayers to the accompaniment of the balaggu-songs of the gods and the lord'. The balaggu is used to appease: 'the balaggu cannot calm her'.

We also find the balaggu as a musical instrument in historical and literary texts: The balaggu is used for the accompaniment of the nis qati prayer, and,: 'the temple singer sings the nis qati-prayer (*i.e.*, to the accompaniment of) the balaggu-instrument.

The three instruments listed below took oaths:'oath taken by the alu, the balaggu and the timbuttu.A stringed-balag in economic texts, because cedar-wood was used for its soundboard: 'made of cedar for Bau'. The sheep mentioned below would have been used either for ritual sacrifice for the 'worship' of the instrument. The instrument most probably represented the voice of the deity, another example of animism. However it is also possible that the hide was used for the drumhead. The mention of the last day of the moon would not necessarily have been associated with worship since it is known from the kalu-ritual that the replacement of hides on kettle-drums was extolled by numerous and lengthy rituals involving the moon phases amongst others: 'one sheep for the balaggu-drum on the last day of the old moon'. If the statement above related to instrument making rather than to rituals then the statement below mentioning an ox-hide indicates either that there were two or more distinct sizes of balaggu. There was a smaller one with a sheep-skin head and a larger one covered with ox-hide or that a standard instrument included both, which is unlikely. The fact that the balaggu cited below is dedicated to the goddess Ninura may indicate that there were two or more sizes of the same instrument: 'one ox hide for the balaggu-drum of Ninura'.

Also a kind of song, probably a dirge, accompanied by the balaggu. The balaggu-songs were quantitatively and qualitatively listed.
We know from the quotation below that there were 39 songs of a specific genre devoted to the god Enlil. It is thus possible that other balaggu-songs were devoted to other deities: 'total of 39 balaggu-songs to Enlil. Some others: 'issued to person x, the chief lamentation priest and person y, the maskim-official during the month Ezen-Dumuzi on the day of the balaggu-song is sung around the town'.

The word was loaned into Aramaic palgah and Syriac pelagga.

bilzabalagir

For the association of the balag with frogs, crickets and locusts, see sassaru and sparrows, see askikitu.

bubatu

Substantive.

Probably a plural.

A singing method.

Appears in Neo Akkadian and only one occurrence:

'He, the singer in the course of the ritual, sings bubatu.

buru

Substantive.

A type of song.

Middle Babylonian. Appears as: 'five buru-songs in Akkadian: 'O untamed lady, you have found, yes, you have found,' and 'young man, since I saw you', 'I shall sing your greatness to all men,' 'I shall sing of the protection of men,' 'they will sing in the dwelling of the lord of the gods,' 'total: five buru-songs'.

dimahhu

Substantive.

A name for an incantation priest.

In one occurrence only. Sumerian loanword.

zamaru

Verb.

To play of a musical instrument.

du-ga

Adjective.

Sweet, to describe trills or tremolo.

sakiru or zabaru

Sumerian dugsakir.

Substantive.

A churn which could have been at the origin of the design of the boviform lyre.

dunnanu

Substantive.

Meaning uncertain. Possibly an incantation for a magic formula.

In one occurrence only in Middle Babylonian.

ea balassu iqbi

The name of a lamentation priest-singer. His name is reminiscent of the ejaculatory repetition of a statement in a Middle Assyrian hymn catalogue: 'May Ea command thy life.'

egubbakugata

The incipit of an incantation.

This incantation was given seven times by the masmasu-priests.

ekuga edingirene

The incipit of an incantation.

This incantation was given by the masmasu-priests as soon as Anu reached the akitu-house.

elilu

Sumerian elil

Substantive.

A type of song.

In Middle Babylonian only one occurrence. A Sumerian loanword: 'two elilu-songs, one following the other'. 'one moment he sings a joyous song in the next he wails like a mourner'.

embubu

Substantive.

Also enbunu, ebbubu.

a - A flute.

b - The name of the fifth interval in tablet CBS 10996.

c - The name of the sixth scale of the Babylonian system, the enneatonic descending scale of C with anacrusis D as: (d)-c-b-a-g-fe-d-c. In Old Babylonian onward in only one occurrence.

'Lament to the accompaniment of the flute', 'it is a destroyed city's shepherd is (the wail of) the flute, never sleeping. (The Sumerian is not clear). '24 breast-songs to the flute', '13 …to the flute, Akkadian'.

embubu

Substantive.

A flute player.

In Old Babylonian in only one occurrence.

'Concerning person x the flute player who, according to your letter, should be in prison, he is a man of Istar. Istar.'s hand is laid on him'.

endudu

endudu equates to zamaru: To play music, to sing. A type of song.

Enheduanna

A female musician, the daughter of king Sargon of Akkad.

enuna anu ibnu same

The incipit of a musical composition copied during the Seleucid period from an older text: 'When the god Anu created heaven, when the god Nudimmud created the apsu-ocean, his dwelling. The god Ea pinched off a piece of clay from the apsu-ocean, created the brick-god Kulla for the restoration of temples, created the reed marsh and the forest for the work of their construction, created the gods Ninildu, Ninsimug and Arazu to finish their construction, created mountains and oceans for everything, created the deities and Ninkurra for their work, created the abundant products of mountain and ocean to be offerings, created the deities Ashnan, Lahar, Siris Ningizzida, Ninsar... for making their revenues abundant, created the deities Umunmutamku and Umunmutamnag to be presenters of offerings, created the god Kusug high-priest of the great gods, to be the one who completes their rites and ceremonies, created the king to be the provider., created men to be the makers, ...the gods Anu, Enlil, Ea. . .,

epis balaggi

Sumerian dubdi

A musician playing the balag-instrument.

Middle Babylonian in only one occurrence.

'If there are many musicians playing on the balaggu in a town'.

epis niguti

A musician playing to express joy.

Appears in Middle Babylonian in only one occurrence.

'Along its street no happy person walks, one meets no musician playing to express joy'.

er

Lament or rites.

er imsese

The title of a musical composition copied during the Seleucid period from an older text.

ersemma

A type of composition.

ersahungu

A psalm of repent.

esabhungata

The name of a musical composition which was accompanied by the halhallatu.

esgi

Hurrian word for Akkadian isqum, the 8th interval in tablet CBS 10996.

estalu

Substantive.

Also as astalu.The feminine is estalitu.

Profane singer. A type of song.

Old Babylonian and Mari. Sumerian loanword with variants for prankster, boaster, dilatory person, disputer and joker.

'As to the naru-singer whom Aplahanda has requested of you, give him one of your own estalu-singers - all your estalu-singers are equally excellent, one of these estalu-singers is no less indispensable than another, and as to the female naru-singer whom he has requested of you, look around and give him one who is dispensable.

ezi gulgullude

The incipit of a musical composition copied during the Seleucid period from an older text.

gaga

Setting the strings of an instrument.

galmahu

Substantive.

A chief singer of dirges in a temple.

From Old Babylonian onward. A Sumerian loanword.

'The chief singer of dirges shall sing about your greatness'.

galaturru

Sumerian galatur meaning small singer.

Student singer.

The Sumerian means 'small singer'.

galaussu

Substantive.

A kalu-musician of second rank.

Appears in lexical texts. Sumerian loanword.

galgaturu, galgaturi

A percussion instrument.

The word is never determined by gis but it occurs with the determinative urudu meaning copper. It is sometimes made of zabar which is bronze, iron and is occasionally found in pairs or sets. Haskallatum in nutim haskallatum zabar might be the Akkadographic writing for galgaturi because the words huhupal and arkammi follow immediately. However, there is a problem with gis galgaturi sagir, a galgaturi made of fired clay as it is hardly a suitable material for cymbals.

Götterbock writes: 'In the myth of Hedammuwe. we read, 'Sausga began to speak to Ninatta and Kulitta, ' take a galgaturi to the border of the sea but with the left beat the galgaturi. E. Laroche used this passage for his identification of the reliefs Nos. 36-38 in Yazilikaya. In no. 36 Kulitta holds in her hand an object that looks like a disk with a straight handle which we used to take for a mirror. In no. 37 Ninatta clearly holds a horn which we thought was a container for ointment. These two objects would be easily understood in the hands of Sausga's handmaidens. Laroche thinks of *'une sorte de tambourin*' for the object in no. 36. This implies that the horn also would be the musical instrument sawatar. Götterbock adds that 'tambourine' is not likely here because of the shape with the straight handle. However, these atypical instruments are common in North Africa. The presence of a handle does not necessarily mean that the item was a mirror.

However, there is a passage from the Hisuwa festival edited by Polvani where we read: ' They sing a song of battle and beat the blagdi and the galgaturi where the drum and the cymbal would go well with a battle song.

gangittu or qangittu

Substantive.

A kind of song.

In Middle Babylonian. Probably a Sumerian loanword.

'Together, two gangittu-songs' and: 'One Akkadian gangittu-song.'

gasu or qasu

Verb. To whirl, to dance.

In Old and Middle Babylonian in only one occurrence.

'The goddess Gusea who dances the whirl'.

ge-en

The fine tuning of a stringed musical instrument.

gidi

Tightening of the strings. This probably indicated the stretching of the strings prior to the fine tuning, which would have been called ge-en.

See above.

gir

Substantive.

Part of a stringed instrument. Probably the tuning wedges of the lyre of the grounds that we have gir.an.bar equating to patru, a glaive. gir.tur and gir.gal for small and large knives. Their shape is reminiscent of the tuning wedges which were exclusively used for the lyre.

gis ur narra

Hand-reed of the musician. Possibly a baton.

gis inanna

See zammaru and zinar.

The Inanna-instruments.

It is possible that the nature of the instrument varied in relation to the period and the geographic situation.

gis nimma or elamu

Elamite harp. See the chapter on the harp for description.

gis sukara

Possibly a fretted lute.

habasillatu

Substantive.

A musical instrument probably made of copper.

Appears in a single instance in a lexical list:

habibu

Sumerian gunundi

Noise-making reed-pipes.

hallatussu

Substantive.

An apprentice singer.

Old Babylonian. It is a Sumerian loanword.

Appears as: apprentice singer, apprentice gala-priest; apprentice aluzzinu.

'Apprentice singers whose voices sing a sipittu-lament'.

halhallatu

Substantive.

A kind of drum.

From Old Babylonian onward.

'To the accompaniment of the halhallatu and the manzu and of the sacred balag', 'the halhallatu and the alu are played for you', 'the kalu will play the lament beginning with irsimase on the halhallatu to the god x'. 'You play the lament E on the halhallatu'. 'The kalu- priests sound forth the praise of his valour on the manzu-instrument and the halhallatu.' On the day of a lunar eclipse: They shall bring from the ammusmu-house a halhallatu of bronze; a manzu of bronze a kettle-drum of bronze'. 'The curse through the manzu-drum and kettledrum, the halhallatu and the cymbals'. 'Adad thunders like a halhallatu.' 'If the intestins 'look' like a halhallatu'. 'May the harp and the halhallatu beloved by your godhead, rejoice your heart.'. 'Five minas of bronze for a halhallatu, person x and person y have receive.'.

Made of metal and fitted with a drum-skin (kus sim) the halhallatu belongs to a group of tympanum drums as are the uppu, manzu and lilissu. They are united by the writing with the sign ab plus an inscribed sign within. This drum gave its name to a lyric genre called the ersema because it was used to accompany a specific type of song. The Sumerian passage uses the verb su tag, 'to beat for the playing of the halhallatu' and the forerunner to Hh as cited above which mentions a kus gag sim, 'leather-head of the drum-stick of the sim-drum'. The equation with kamkammatu, a type of ring, may result from the similar shape of the drum or a metal part thereof.

halilu

Adjective.

Piping.

Middle Babylonian in one occurrence only.

'The piping flute the voice of which is sweet'.

hamsu

Fifth string, the central string and note of the Babylonian enneatonic system, as known from tablet UET VII 126.

harharru

Sumerian gis harhar.

Substantive.

A string instrument.

Middle Babylonian in only one occurrence. Sumerian loanword.

In lexical texts:

Probably the lute with added rings at the top of the neck as with the Moroccan gunbri or the gurumi from the Niger.

harru

A lyre.

hasisi

Ear of the lyre.

hasisu

Sumerian gis gagzami.

'Intelligence' of the harp. Possibly the tuning pegs or a tuning device.

hubbu

Humming.

In only one occurrence in a lexical text.

huhupal

A percussion instrument . The Hittite word for cymbals. See arkammi. The only determinative used with the word is gis. Although this could indicate wood as the general determinative of implements it would still be surprising if it designated objects made entirely of wood to the exclusion of any metal part. There is a huhupal made of either box-wood or ivory: 'One set ,or pair of haskallatum of bronze, one set, or pair of huhupal, either of boxwood or of ivory and one arkammi'. However, haskallatum is not necessarily the Akkadogram for galgaturi. That the huhupal is counted by sets (istenutu) might be in favour of the meaning of cymbals, but there the materials boxwood and ivory do not make sense. However, these instruments could have been akin to the 'wood-block' where the materials boxwood and ivory would have been suitable. The following text, KUB XXV 37 with fragment 4 describes a ritual of the men of Lallupiya for the king and the queen. It contains a song in Luwian. These lines say that a person holds something out to another. The item is held with both hands. Whether the item is the .huhupal first mentioned below in line 10' cannot be assured.

Lines 4-10 translate as follows: 'The leader of the men of Lallupiya calls out to the cupbearer as follows: 'w riyati hapanusa'. The cupbearer begins to dance. Just as the cook danced, he too begins to dance in the same way and he turns on the spot. Another man from Lallupiya holds him from the back by his cloak and they..turn on the spot together. The cupbearer only holds the huhupal. He does not beat it.

Lines 11-13 translate as follows: The huhupals which the men of Lallupiya and their leader hold, they beat. The cupbearer begins the following song in front of them.

Lines 15'-19' do not yield any intelligible text. One may ask whether edaniser in line 18' is to be restored according to lines 29'-30'. If so it would mean that the action of putting one huhupal on top of the other was introduced in line 18'.

Lines 25' to 30' translate as follows: Then if it flows out of the upper huhupal. then it flows from that down into the lower huhupal. And the god drinks it from that one. But it does not flow to the ground. For that reason it is made to be preserved. It is for that reason they arrange one huhupal above the other.

Lines 31' to 33' translate as follows: But if someone pours it out on the ground, they retrieve it right there with a bronze warsini.There is nothing more.

Lines 36' to 40' translate as follows: When they fill the huhupal with wine. The first time only the cupbearer drinks it up, sniffing (? Lit. in the smell). The men of Lallupiya sing as follows: ' wintar, wintar taruwaliyan wintar' while they drink and while they finish that song is sung. They reply singing.

Lines 41' to 45' translate as follows: If something remains in the huhupal which only the cupbearer separately drinks sniffing, he takes the huhupal up and drinks the wine. They drink all the wine. They do not pour it out, it is not right.

Lines 46'+6' to 11' translate as follows:

When the cupbearer [...-s] the huhupal, he just fills it, but does not wipe it out. He gives it to him who is the leader of the men of Lallupiya. When a man of Lallupiya holds out to him and a full one, he sings opposite him like a woman in the same way.

Lines ii 1'-2' translate as follows:

The men of Lallupiya sing as follows:'wintat, wintar taruwalian wintar'.

Lines 3' to 9' translate as follows:

But when [...] to drink [...] some people [...] in the huhupal do not hold up [...] and on the upper arm [...] the right [...] [They] do not kiss [...].

Lines 10' to 14' translate as follows:

When they all finish drinking the cupbearer drinks the huhupal sniffing in the same way. When [...], the cupbearer takes the huhupal up and begins to play it.

Lines 15' to 18' translate as follows: Then he begins to dance. As he turns in place, behind him another man of Lallupiya holds him by the cloak on his back. They dance together and turn in place.

Lines 19' to 21' translate as follows: They sing this song: 'taruwalian tarpatti asta [...] anda massaniya paiu'. The crowd calls out with them.

Lines 22' to 26' translate as follows:

When they have turned three times, the cupbearer squats down. The one who holds him from the back, covers his head with the cloak. The cupbearer [...]-s the huhupal to/at his feet.

Lines 27' to 35' translate as follows: The men of Lallupiya sing this song. Follows a long but fragmentary Luwian song which is partly preserved on the adjoining fragment KUB XXXV 132 obv.

hunzinar

Hattic word used in Hittite, see zamaru and zinar.

The large zinar.

huppu

Substantive.

A drum-skin of the lilissu-drum.

In a lexical text in only one occurrence.

igigidakku

A drum-skin of the lilissu-drum.

In a lexical text in only one occurrence.

inhu

Substantive.

A tune or a song associated with a lament, perhaps a lament itself.

In only one occurrence in Middle Babylonian.

'The temple-singer will perform a lament, the singer will sing the inhu...'and 'You seat the assinnu eunuch-prostitute, and he will sing his inhu'.

The singer Ur-Nanshe from the Istar temple at Mari, illustrated in 175, might have responded to this category of singers. It was the function of qadistu priestesses to sing the inhu in this instance for the god Adad: 'The qadistu- women recite the inhu before Adad, they prolong' (?)the inhu'.

The inhu-songs mentioned in the catalogue KAR 158, as with those of Assurbanipal are hymns or prayers to istar, not only lamentations.

The same holds true of the inhu- song of the qadistu-priestesses and of the asinnu-eunuch-prostitute.

inu

Substantive.

Sumerian gis gude

Probably the generic name for the lute.

However, it is probable that it was better recognised by its Sumerian form gude from which various etymologies derived. A lexical list has over 25 entries for it with variations.

isis

Music, lamentation.

ikribu

Prayer, benediction.

ilu

Music, lamentation.

ilulamma

A type of song.

immeru balaggi

The sheep whose skin is used for covering the balag.

ippizinar

Hattic word used in Hittite. See zannaru and zinar.

The small zinar.

irgididakku

Sumerian ergidisa

The sign is su.

Substantive.

A lament to the accompaniment of the flute.

Sumerian loanword which appears in a lexical text in only one occurrence.

isaharhubbakku

Substantive.

A lament.

In a lexical text in only one occurrence. Sumerian loanword.

Lit. 'lament (to be recited while) covered with dust'.

irsipittu

Substantive.

A lament.In a lexical text in only one occurrence. Sumerian loanword.

Literally: 'lament mourning'.

Possibly to be read simply as sipitu rather than irsipitu

irsizkurakku

Substantive.

A lament.

In a lexical text in only one occurrence. Sumerian loanword.

lit.: 'lament with prayers (or sacrifices)'.

irsabadari

Substantive.

A lament.

In a lexical text only in one occurrence. Sumerian loanword.

irsannisakku

Substantive.

A prayer in the form of a lamentation.

Middle Babylonian in only one occurrence. Sumerian loanword.

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irtu

Sumerian gabauzugaba

Substantive.

Feminine word.

Old Akkadian. Plural iratu.

A type of song, probably a love song since irtu means breast.

isis

Sumerian word.

Music, lamentation.

isartu

The eighth interval listed in the tablet CBS 10996.

1) The name of the first scale of the Babylonian system, the enneatonic descending scale of B with anacrusis C.

2) The third interval listed in tablet CBS 100996.

isaru

Substantive.

The erection of the penis compared to the tautness of the musical string.Old and Middle Babylonian.

'Let my penis be like the taut cord of the harp, not to withdraw from her'.

iskaru

Substantive.

A collection of songs.

'Six songs forming one collection'.

'Two collections amounting to eleven songs'.

'All together, six collections amounting to 31 songs, series called my shepherd, my shepherd!'

istarutu

Substantive.

A type of song.

Middle Babylonian in only one occurrence.

'I have listed three series consisting of 15 individual istarutu'.

isteni sutesmu

Sumerian tesbi

In a bilingual text concerning a vocal piece in honour of King Sulgi, Gestinanna is called the lamassu of the song in which many voices will be 'brought into accord, and whose teamwork is balanced, and which is performed in the temple of Ninlil.

isqu

The eighth interval listed in tablet CBS 10996.

jaruru

Shouting to express complaint, joy, etc.

In Middle Babylonian.

'the mu'uru- singer shall sing with jaruru-shouts of joy to the accompaniment of the harp'.

kainimma

Sumerian word, see siptu.

kalamahu

Substantive.

A chief of the lamentation priests, chief singer of dirges in a temple.

Old Babylonian, Neo Assyrian. A Sumerian loanword.

‘ personx, the wife of the chief of the lamentation priest’.

‘Function of singer’.

‘Chief of the singers’.

‘Student singer’. Textually ‘man of the high office of the singers’.

kalu

Sumerian gala

Substantive.

Lamentation priest.

The word appears from the Old Babylonian period onward. It is a Sumerian loanword.

The kalu was a temple singer but had other functions. In the present quotation he is particularly associated with songs in praise of overlordship, to the accompaniment of the balag:

‘The lamentation priest sings a song; the lamentation priest sings a song in praise of overlordship; the lamentation priest sings a song to the accompaniment of the balag’.

‘The lamentation priest and the collegium of the abru-priests stand ready with the balag for you’, a ritual to avert the portents of an eclipse of the moon.

‘After sunset the lamentation priests of Ebabbar set up the lilissu kettle-drum and declared: There is an eclipse of the moon!’.

The word appears in a lexical list of gods:

‘One of the lamentation-priests sings, accompanied by the halhallatu-drum, the ersemma for Enlil’.

‘The lamentation-priest will sing accompanied by the halhallatu to Ea’.

‘the lamentation-priest chants a prayer to the accompaniment of the balags’.

Ritual to be Followed by the Kalu-Priest when Covering the Temple Kettle-Drum

This ritual is known from four texts, designated low as A, B. C, and D; all four texts are transcribed and translated by F. Thureau-Dangin, *Rituels Accadiens* (Paris, 1921), 10 ff. Text A, now in the Louvre, was copied in the Seleucid period in the city of Uruk; the latest copy is by F. Thureau-Dangin, *TCL,* vi, No. 44, the latest translation by E. Ebeling, *AOT, 303* ff. Text B, now in Berlin, was excavated at Ashur, where it had been copied from older Babylonian texts in the seventh century B.C.; a copy of the text was published by E. Ebeling, *KAR,*1, No 60. Text C consists of two duplicate texts, in Berlin and London, the former excavated at Ashur and the latter at Nineveh, both having been copied in the seventh century B.C. from older tablets which came from Babylonia; one was published by E. Ebeling, *KAR, 1,* No 50, the other by H. Zimmern, *Beiträge zur Kenninis der bab. Rel.,* Ritualtafeln No. 56. Text D, from Nineveh, was published in Vol. iv of Rawlinson, No. I of Plate 23; it is a copy of an older text which came from Babylonia. From James B. Pritchard, Ancient Near Eastern Texts, Princeton University Press, 1969.

When you [are confronted with the task of] covering (that is, replacing the head of) the kettle-drum (used in the temple, proceed as follows). An expert shall inspect—from head to tip of tail—a sound black bull whose horns and hooves are whole. If its body is black as pitch, it shall be taken for the ceremony. (5) If it is spotted by (as many as?) seven white tufts (which look like) stars, or if it has (ever ?) been struck with a staff or touched by a goad, it shall not be taken for the ceremony. When you have the bull led into the *mummu*-house, on an auspicious day you shall stand at its side, sweep the ground, sprinkle pure water, (and) . . . the *mummu*-house. You shall lay two bricks, (one) at the right, (the other) at the left of the doorway of the *mummu*house. (l0) You shall scatter flour for the god(s) of heaven, the god(s) of heaven and earth, and the great gods. You shall make a libation of prime beer. You shall (then) have the bull led into the *mummu*-house. You shall lay down a reed mat. You shall scatter sand beneath the reed mat, and you shall surround the reed mat with sand. You shall set the bull on the reed mat, tying his legs with a bond made of goat's hair. (15) Opposite the bull, you shall place beer (made of) . . . in a bronze drum. You shall set up [two] .....-vessels for the deities Kusug and Ningirim. You shall set up [two] stands; on each you shall place seven loaves of barley bread, seven loaves of emmer bread, a paste of honey and cream, dates, and .....-flour. You shall set up (vessels containing?) [beer, wine,] and milk. You shall set up an *adagurru*-vessel. (Of lines 20-36 only the following ends of lines are preserved:) . . . cypress . . . you shall set up a drinking cup . . . one-third of a pound of white wool . . . seven and one-half (pounds?) of goat's hair you shall put down. . . beer (made of) . . . tamarisk . . . reed . . . thorn . . . you shall lay down an .....-vessel . . . cedar *sap,* honey, cream . . . you shall lay down; [you shall purify] with a censer and a torch . . . thigh, . . ., and *roasted* meat you shall offer; you shall make a libation of [prime beer, wine], and milk . . .you shall lay down . . . .*-vessel*. . . you shall lay twelve bricks. (ii) On (the bricks) you shall lay twelve (pieces of) linen. On them you shall seat all twelve gods. You shall lift up the .....*-vessel* of the deity Ningirim and with its water you shall clean the equipment prepared for the ceremony. You shall sprinkle some (aromatic?) barley seed. You shall set up the kettle-drum (5) You shall lay a brick for the deity Lumha. You shall set up a stand. You shall slaughter a sheep. You shall offer the thigh, . . ., and *roasted* meat. You shall make a libation of prime beerwine, and milk. Before these (gods) you shall place water. You shall draw the curtains shut. On the bull you shall perform the rite of Washing the Mouth. You shall whisper through a reed tube into the bull's right ear the incantation entitled "..... (10) You shall whisper through a reed tube into the bull's left ear the incantation entitled "....." You shall besprinkle the bull with cedar *resin.* You shall purify the bull, using a brazier and a torch. You shall draw a ring of *zisurra*-flour around the bull. Standing at its head, you shall sing (the composition called) "*Nitugki niginna*" to the accompaniment of a bronze ..... (15) After that, you shall recite (the composition entitled) "*Dimmer . . . ankia mundimma.*" Then you shall cut open that bull and start a fire with cedar. You shall burn the bull's heart with cedar, cypress, and .....-flour before the kettle-drum. You shall remove the tendon of its left shoulder and shall bury the body of that bull (wrapped) in a single red . . . cloth. (20) You shall throw some *gunnu*-oil on it (and) arrange it so that its face points to the west. You shall take the hide of that bull and dip it in fine flour made from clean barley, in water, prime beer, (and) wine. You shall then lay it in the pure fat of a bull and aromatic ingredients, (taken) from the hearts of plants, with four *qa*-measures of ground malt, four *qa*-measures of *bitqa*-flour, (and) one (*qa*-measure?) of.... (25) You shall press (it) with gall-nuts and alum from the land of the Hittites. (With it) you shall cover the bronze kettle-drum.

On it you shall stretch a linen cord. Drum-sticks (or pegs ?) of *musukannu*-wood, . . .-wood, cedar, and .....-wood, and all the rest of the *drum-sticks (*of ?) .....-wood for the bronze kettle-drum you shall *cover* with *varnish*. (30) With the tendon of (the bull's) left shoulder you shall . . . its *opening*. You shall loosen the (linen) cord, and lay it on a .....You shall bury the….. You shall make preparations for a sacrifice to the god Lumha. You shall sacrifice a sheep and shall offer the thigh, the…, and roasted meat. (35) You shall make a libation of prime beer, wine, and milk. (iii) Anu, Enlil, and Ea, the great gods. The deities Lugalgirra and Meslamtaea. The deity Zisummu (or) Ninsig, who is in the city Nippur. (5) The deity Bigirhush (or) Shuzianna, of the .....-ocean. The deity Sabarragimgimme (or) Ennugi, who cultivates the fields. The deity Urbadda (or) Kusug, the exalted lord.(10) The deity Urbadgumgum (or) Ninsar, the son of the temple Eshabba. The deity Gubbagarrae (or) Ninkasi, the son of the new city. The deity Abarralah (or) Nusku, born on the thirtieth day (of the month, when the moon is) invisible. On the fifteenth day, you shall cause the bronze kettle-drum to be brought forth to the presence of the god Shamash. You shall prepare five sacrifices for the deities Ea, Shamash, Marduk, Lumha, and the Divine Kettle-Drum. You shall sacrifice a sheep and offer the thigh, the . . ., and *roasted* meat. You shall make a libation of (20) prime beer, wi[ne, and milk]. you shall perform the purifications with brazier and torch and of with water from the .....- vessels. You shall recite three times (the composition entitled) "*Enki Utu . . . zadede*."You shall cause to be performed the rite of the Washing of the Mouth . . . on it (that is, the kettle-drum). You shall anoint it with *animal fat* and filtered oil. The .....-priest (25) shall lay . . . upon the bronze kettle drum. You shall (then) remove the (sacrificial) accoutrements (and) shall purify it (that is, the kettle-drum) with brazier and torch. You shall grasp the "hand" of the kettle-drum (and bring it?) to the presence of the gods, setting it in (aromatic?) barley seed. you shall *perform* the lamentation (called ?) *"Lugale dimmer ankia."* (Colophon:) This ritual, which you perform, (only) the properly *qualified* person (30) shall view. An outsider who has nothing to do with the ritual shall not view (it); if he does, may his remaining days be few! The informed person may show (this tablet) to the informed person. The uninformed shall not see (it)—it is among the forbidden things of Anu, Enlil, and Ea. the great gods. (iv) [Whoever . . .], may his [remaining days] be many! (Equipment to be assembled :) . . . the bronze kettle-drum . . . cypress, one-half pound of *sweet-smelling* reed, (5) . . . of *roses,* ten shekels of aromatic *annabu,* . . . of ....., . . . of *kanaktu,* . . . of *suadi,* two *qa*-measures of filtered oil, . . . two *qa*-measures of wine, (I0) . . . of *bitqa*-flour, four *qa*-measures of ground malt, . . . one-half *qa*-measure of cedar *sap,* . . . *varnish,* . . . the *wrappings* of the *drum-sticks*. . . . white . . .-cloth, one red . . .-cloth, (I5) . . . pounds of wool, seven pounds of . . . , . . . seven pounds of blue wool, . . . [goat's] hair, two *kur*-measures and four *pan*measures of barley, one *pan*-measure of (aromatic?) barley seed, . . . emmer, salt, and cypress, one reed, . . . utensils (20) of iron . . . one-half pound of *musukannu*-wood, three of . . . - wood, three of cedar, three of *ušu*-wood, three of tamarisk - all the rest of the *drum*-sticks of *maštu*-wood; (25) ten linen cords, each cord four cubits long; one linen cord one hundred cubits long; teb cords of goat's hair, four cubits long; one cord, with which the bull was bound; one . . . one cover. The equipment (to be made by) the potter are: four .....-vessels, four .....-vessels, (30) four .....-vessels, twenty-four .....-vessels, I20 *malittu*-vessels, 300 bagurruvessels, sixty braziers, five ....., six *aggannu*, six *nisippu,* two ....., two ..... The equipment (to be made by) the woodworker: one *kummu*, four iron pegs, wood for the pegs (or drum-sticks?). The equipment for the wickerworker: twenty-four stands, twenty-four *baskets,* five *hand baskets,* three mats, three covers. (Colophon:) Ritual of the .....-priest. Tablet belonging to Anuahaiddin, the son of Rihatanu, the .....-priest of the deities Anu and Antu, citizen of Uruk. It was copied from an old(er) tablet, checked, and rechecked.

TEXT B

(beginning and end of tablet broken)
. . . water before them . . . the *kalu*-priest in a bronze *drum*.... You shall lay down a reed mat, [strewing sand] beneath the mat and (5) surrounding the sides of the reed mat with sand. You shall set the bull upon the reed mat and besprinkle him with water from the .....-vessel; you shall wash the bull's mouth. You shall encircle the bull with a circle made of *zisurra*-flour and lay a brick in front of the bull. you shall sprinkle some cypress on the brazier and make a libation of prime beer. (10) You shall whisper through a reed tube into the bull's right ear the incantation entitled *"*....." You shall whisper through a reed tube into his left ear the incantation entitled *"*.....

You shall place the bull before the god Lumha and . . . with cedar *sap.* (I5) Then you shall *cut open* that bull and (burn) the bull's heart before the god Lurnha with cypress, (cedar, and .....-flour*). You* shall sprinkle (some cypress upon the brazier) and make a libation of beer. The *kalu*-priest shall remove his head, . . . he shall bow down and remain at the bull's head, reciting three times the composition entitled *"Muluna."* Furthermore, he shall recite the following words three times: "These acts—it is the totality of the gods who have performed (them); it is not (really) I who performed them." you shall then take away the water and open the curtains. (5) You shall take the above-mentioned hide and dip it in crushed flour made from clean barley, in water, beer and first-class wine. you shall press (it) with fat from a clean bullock, alum from the land of the Hittites, and gall-nuts. (With it) you shall cover the bronze kettle-drum. With the left tendon of the (bull's) shoulder you shall . . . its *opening.* (10) You shall wrap the *drum*-sticks with *fluffy* wool and *cover* it with *varnish;* you shall.... In an auspicious month, you shall find a favourable day, and then you shall perform all these acts. The .....-priest shall not eat any of the flesh of the above-mentioned bull....

TEXT C

(obverse)
Incantation:
You are the Exalted Bull, created by the great gods. You were created for the service of the great gods. In the heavens your image . . . for the rites of divinity. (5) When the gods Anu, Enlil, Ea. and Ninmah [decreed] the destinies of the great gods. Your skin (and) your muscles were destined for the secrets of the great gods. (IO) Remain for everlasting days in this secret! (O great gods,) fix the destiny of this image with the gods, his brothers! As for this god, may his temple be holy and pure! (I5) May the evil tongue remain outside! (reverse) The ritual (is as follows). On a good day in the correct month, in the morning, before sunrise, you shall prepare three sacrificial stands for the gods Ea, Shamash, and Marduk. (On the stands,) you shall sprinkle some dates and .....-flour and shall set a mixture of honey and *cream.* (5) You shall slaughter three white sheep and offer the thighs, the . . ., and the *roasted* meat. You shall put down a brazier filled with cypress and sprinkle some .....-flour *(*on it?). You shall pull the curtains shut. you shall scatter (about?) heaps of flour. You shall place the Exalted Bull in a place forbidden (to the outsider), and then you shall whisper three times into his right ear and his left one. You shall then cut (open?) the Exalted Bull (10) and take his hide and tendon for this work (which you are about to perform). Incantation: *"Karzaginna kar. . . "* . . .

TEXT D

The deity Gabbagararae (or) Ninkasi, the son of the new city. (5) The deity Ebarralah (or) Nusku, *born* on the thirtieth day (of-the month, when the moon) is invisible. (These) seven gods, children of the god Enmesharra, are (represented by) the heaps of flour. You shall lay the twelve bronze gods in the bronze kettle-drum and then you shall cover (that is, attach the head of) the bronze kettledrum. Great Bull, Exalted Bull, who treads upon clean pasture, (10) Who walks upon the fields, who holds abundance, The cultivator of grain, who causes the countryside to be *fertile,* My clean hands have made a sacrifice before you. (I5)(The above is) the word of the .....-ocean which you shall whisper through a reed tube into the right ear of the bull used to cover the bronze kettle-drum. Bull, you are the offspring of the deity Zu. You have been chosen for the rites and ceremonies.(20) The deity Ningizzida is your friend for eternity. The great . . ., guard the (heavenly) plans!. . . fix the. . . schemes of heaven and earth!. . .be entrusted to the god Lumha!. . . be . . . to the god Bel. (25) (The above is)[the word of the .....-ocean which you shall whisper into] the left ear of the bull used to cover the bronze kettle drum. He who is lying down, the lord who is lying down, how long will he remain lying down? The great Mountain, the father, Mullil, who lying down, how long (will he remain lying down) (30)The Shepherd who decrees the destinies, who is lying down, how long? (ii) . . . The god Mullil, who has given his city away—together (the foe) devoured it. The person who had good clothing perished of cold, (5) He who owned vast fields perished of hunger. The above composition is for the occasion when the twelve bronze gods are laid in the bronze kettle-drum. Faithful Shepherd, faithful Shepherd, (10) God Enlil, faithful Shepherd, Master of all countries, [faithful Shepherd], (15) Lord of all the Igigi deities, faithful Shepherd, Lord of the . . . , faithful Shepherd, The lord who drew the outline of the land, who . . . his land, (20) The lord who drew the outline of his land, . . . , you gave the accumulated [to the enemy], (25) [You gave] the stored treasure [to the enemy].

[The enemy dwelt] in a clean house,the enemy dwelt in a clean place, (30) [The stranger lay] in a clean bedroom. iii (So) beautiful a city - [how could I turn it over to the enemy]? May the lord Ea, the king [of the .....-ocean, calm you]! May the lord Marduk [pacify your liver]! (5) May the lordly father Adad [calm you]! May the lordly hero Shamash [pacify your liver]! (10) May lord Ninurta [calm you]! May exalted lord Shulpae [calm you]! Point my hands in the straight direction, [point my hands in the straight direction]! (15) Point my hands in the straight direction, [point] my hands [in the straight direction]! Make these words be right, [make] these words [be right]! (20) As for the kettle-drum, [make] its word be right. (The above is) the incantation (to recite) [when performing] the rite of the Mouth Washing of the bronze kettle-drum. Before the god Lumha and the bronze kettle-drum, you (25) shall set up a stand and prepare it (for the ceremony). You shall sprinkle some .....-flour (on?) a paste of honey and *cream* and some dates. You shall [sacrifice] a sheep and [make an offering] of the thigh, the . . . , and roasted meat. . . iv (The above-broken away in the text-is) the incantation (to recite) when placing water (on the stand) and when drawing the curtains shut. [Having placed the water (on the stand)], you shall draw the curtains shut. Wash [your hands], wash your hands, you are the god *Enlil*, wash [your hands], (5) You are *Enlil*, . . ., You are . . . , (10) . . . , wash [your hands]! . . . the earth . . . , (15) May all the gods] rejoice in you! [O god *Marduk*], for your king speak (the words): "You are released." (20) O god *Adad*, for your king speak (the words): "You are released." (The above is) the incantation (to recite) when removing the water. Having removed the water, you shall open the curtains. (25) (The next tablet of this series begins with the words:) When you have had the bull led into the *mummu*-house. (Colophon:) Ritual for the .....-priesthood, copied from an older tablet and checked.

kalutu

Sumerian namgala

Substantive.

The collegium of the lamentation-priests, the craft of the kalu or the corpus of texts used by the kalu.

In Old, Standard and Neo Babylonian.

Collegium of the lamentation-priests.

In general usage:

'He performs six units of feudal service and pays me the tax for which the sangu and the lamentation-priests are liable'. 'Bread and beer issued to luigibal, the ukalutum', referring to the prebend of the lamentation-priests: 'additional share out of the prebend of the lamentation-priests and of the prebend of the pasisu-priests of the temple of Ninsun'.

'Person x, son of person y has handed over the various documents concerning the prebend of the lamentation-priests and his share of inheritance to person z', and King x made a grant to person q of 1 sila of bread and one sila of first quality beer daily in the chapel of Sin which is located in the courtyard of Eanna as income-share of the prebend of the lamentation-priests'.

kamma

Sumerian word.

Adjustment of strings for the purpose of pre-tuning or fine-positioning.

kamkammatu

Rings, jingles, possibly, as they are associated with such items.

kanzabu

Substantive.

A musical instrument.

Middle Babylonian. See sinnatu.

karabu

Verb.

To pronounce formulations of blessing (said of gods and divine powers), to pronounce formulations of praise, adoration, homage and greeting.

karsu

Substantive.

A type of song.

Middle Babylonian in only one occurrence.

kerru

Substantive.

A type of song.

Middle Babylonian in only one occurrence. The plural is kerretu.

kilu

A music term of performance.

kinnar uhuli

A Hurrian lyre player.

kinirtalla

A Hittite lyre player.

kinnaru

Substantive.

A stringed instrument. Probably a lyre. The kinnor of the Bible.

Mari, ca. 1770 BC; Alalakh, 1500-1400 BC.

Found on a Hittite tablet from. A hapax legomenon, kinir is cognate with kinnor and Talla indicates 'player of the instrument'. The large lyre was called hunzinar and the small one ippizinar in Hittite. The word zinar is probably Hattic. In fact the words zinar and kinir show a shift of k > z, which is seen in Luwian words derived from the Hittite. It could be suspected that zinar was Luwian and not Hattic. However, this cannot be since both hunzinar and ippizinar can have the suffix -nu which is not Luwian. The kinnor was loaned into Hattian with the same shift (Hattusas 1500-1200 BC).

In Ugarit, 1400-1300 BC, we have knr in alphabetic cuneiform and kinaru in syllabic, in several texts. In Emar, 1300 BC, there is kinnaru. In Egypt, about 1200 BC, the term knnr or kinnuru. The Hebrew Bible mentions the kinnor 42 times.

Also: 'With regards to the five lyres my lord wrote to me about ', 'Person x made two lyres, now I am sending my lord the two lyres person x made. It is composed of the lyre loan word and the Hurrian word huli which indicates a profession, that is either the player or the maker of the instrument.

kiskilatu

substantive

Metal clappers played by entertainers called kugarru.

Middle Babylonian and Neo Assyrian.

'They strike the clappers', and

'The king and the nobles hold clappers.

kiski'u

Substantive.

A musical instrument.

In only one occurrence in a lexical text.

kissuratu

Sumerian gilubalagdi

Reed-pipes for lament.

kisubu

Sumerian kisubim

Substantive.

The final part of a hymn.

Middle Babylonian. Sumerian loanword.

'End of the song for the performance of the ritual to consecrate the copper kettle-drum'.

kisu

Sumerian word. See sihpum and sahapum.

The same word for overtuning, throwing down, lowering, also forms part of the term kisu which is found at the end of certain compositions. It may indicate a descending finale which could have consisted in the descending scale in which the piece was composed.

'I formulated all the rules for both rising,raising and overtuning, throwing down the scale? pitch? interval?'.

'On the tigi and the zamzam-instruments I know each position for 'rising/raising' and 'overtuning/throwing down'.

'I also know both rising, raising and overtuning, throwing down, lowering' on the siezen and the sukura-instruments in order to play them faultlessly'.

kitmu

Substantive.

1) The eleventh interval listed in tablet CBS 10996.

2) The seventh scale of the Babylonian system the descending enneatonic scale of F with anacrusis G as (g)-f-e-d-c-b-a-g-f. Old and Middle Babylonian in only one occurrence. See katamu.

kiuruguda

A type of song.

kugarru and kurgarru

Substantive.

Also found as kurgiru.

A performer of cultic games, plays, dances and music. Prostitute dancer and singer.

In Middle, Standard, Neo Babylonian and Assyrian. Sumerian loanword.

In literary texts it is found in the following context:

'The kurgarru and the singers whom Istar has changed from men into women in order to teach the people religious fear', and: 'side by side with Istar of Babylon, cry the flute player, the singer and the kugarru. 'The kugarru who play a war game in the arena, beat the kiskilatu-instruments, shout their cries'. 'They dance, the kugarru sing a battle dance song, the singers resond with shouts of joy', 'The kugarru and assinu-singer wearing the mask of the golden Naruduvdance around the deities from left to right as before', 'The kugarru puts a mask on his head', 'the expert singers sit before her on the ground, those who play the harp, the small harp and the clappers; the players of the flute, of the sinnatu, of the long-pipes the kugarru who carry the spindle, the . . . and the whip ease her mind with incense of sweet reeds'. 'The . . . of the drum of the kugarru is covered'.

The kugarru, assinu, kulu'u and others were members of the temple which were often mentioned in connection with the cult of Istar performing plays, dances and music as a part of the ritual during festivals.

There is no evidence that they were eunuchs or homosexuals. However, in the Descent of Istar the reference to the kugarru as neither male nor female may indicate that they were transvestites performing in female costume. For a female representative of the profession: 'eight female chief singers, three Aramean singers twelve Hittite singers, thirteen singers from Tyre and 13 actresses'.

kusgugalu

Substantive.

A drum.

In Middle Babylonian.

'The hide of the great bull and the strong copper that is beside the sick man: the hide of the great bull is Anu, the strong copper is Enlil', 'You purify that house with the ? strong copper; the hide of the great bull, seeds and scattered seeds'.

The Akkadian reading of the signs kus gu gal is unknown. It is unlikely to be kusgugalu because the Sumerian form would result in kusgugallu and the prolongation with a vowel indicates that the Akkadian word ended in a long vowel. Possibly it is an artificial logogram for alu, meaning 'drum', based on a graphic play with alu meaning 'bul' and urudunigkalaga, the Akkadian equivalent of which ends in -gu, for tigi. The reference kusmasgal: 'received by a tanner' refers to the hide of a she-goat and should be read as a Sumerian loanword.

lallaru

Sumerian iluali

Lamentation singer.

lapatu

Sumerian tagtag

Also luputtu.

To play a stringed instrument; to sound an interval of two notes simultaneously or successively for the purpose of tuning that interval:

In the context of tuning:

'When the harp is tuned in the scale of isartum and you play the two notes of the interval qablitum'.

In context of the playing a stringed instrument:

'May the plucking of his strings be disagreeable to his public'.

'They play their intervals like musicians'. 'Theyplay for her on the sacred uppu-drum, on the pure balag-stringed instrument'.

laptu

Adjective.

The feminine is lapitu.

Plucked strings.

In Old and Middle Babylonian, Neo Assyrian and Babylonian.

With reference to the lute as a plucked instrument:'the plucked lute'. The fact that the lute is defined as a plucked instrument in the aforementioned quotation would not necessarily imply that there was a form of inu which was not plucked. The only other alternative to plucking would be bowing but we have no evidence of such whatsoever. It is possible that they differentiated instruments which were plucked with fingers with those plucked with a plectrum. It may also be possible that as has been hypothesised in the section about the lute that one type was akin to the Indian tambut and produced a drone effect rather than the distinct plucking with which we are more familiar. In which case the plucked type needs to be distinguished from the drone.

lilissu

Sumerian liliiz

Substantive.

The generic name for kettle-drum.

There is no doubt about the identification of the instrument as it appears drawn along with a cow, the hide of which was destined to its covering, in a late text. Its early pictograph is the rectilinear stylisation of the instrument. The word appears from Old Akkadian onward.

The plural is lilissani or lilissati. It is written syllabically and as liliiz but rarely as lid dub.

'Make the copper kettle-drum speak the right word', 'One lilissu weighing two minas', 'Year in which Manana made a copperkettle-drum'.

'I had a kettle-drum made of shinning copper cast of ?, the covering of which was ? in the technique of god x, the patron god of the leather workers and had it perform to reconciliate and appease the gods of the fifth, the seventh day and on ?'. 'The months Ajaru and Sinatu are favourable months, let the king give an order that the kettle-drums should stay behind, one only, a kettle-drum of copper should go around the temples'.

'End of the song for placing the twelve copper divine images inside the kettle-drum'.

'a kettle-drum in his heart'.

'For two ceremonies with the copper kettle-drum on the xth day'.

In ritual use:

'A consecrated singer clad in a linen garment cannot sit at the kettle-drum clad in his garment' , and: 'The chief kalu-priest, when he sits at the copper kettle-drum, strips of his linen garment and is clad in ? and a normal garment'.

On the day of an eclipse of the moon:

'They bring the copper halhallatu and manzu-instruments and the copper kettle-drum from the . . . and place them beside the . . . '.

After sunset:

'The kalu-singers of Ebabbar played the copper kettle-drum at the great gate of Ebabbar and declared: there is an eclipse! all the people of Uruk saw the playing of the copper kettle-drum with us';

and dated on the same day:

'After we played the copper kettle-drum at the great gate of Eanna, having failed to consult with person x, the satammu, and person y, the royal commissary, concerning the use of the kettle-drum, they did not appear there until it was time to remove the kettle-drum'. 'The kalu-singers play the kettle-drum'.

'You set up the kettle-drum, the copper kettle-drum' , 'the copper kettle-drum is played, the copper kettle-drum moves on and they proceed'. 'You have the king recite the cited lamentation to the accompaniment of the copperkettle-drum'. 'These are the kettle-drum performances for the entire year performed before the gods'.

'The kettle-drum which the king, my lord, sets up in his palace will be played this night before Marduk and he will bless the king', and: 'For the stand for the copper kettle-drum', and: 'The kettle-drum is played in front of him while on a stand'.

'The hands which are drawn one the bronze kettle-drum these are their names to recite the names follow'.

'With white paint you paint all the other sticks serving as drumsticks for the kettle-drum'.

lugale ankia lugaltaea

The incipit of an incantation.

This incantation was sung by the urigallu, masmasu, and eribbittu-priests as well as the brewers.

lugale ezen sinmundu

The incipit of an incantation.

This incantation was sung seven times by the masmasu-priests.

lugaltaea sila kuga badibata

The incipit of an incantation.

This incantation was given by the masmasu-priests from the Upper Dike of the Holy Quay to the Royal Gate.

lusanu

Substantive.

A musical instrument or a part of it.

This term appears in one occurrence only in a lexical list.

magur munu

The title of an incantation dedicated to the god Anu.

mahasu

Verb.

To play of a musical instrument.

'Let him play the lapis lazuli flute'.

malgatu

Substantive.

A type of literary composition.

malahu

Verb.

To perform a dance or a song.

Old, Middle and Neo-Babylonian.

malhu

Adjective.

Plucked.

malilis

Adverb.

Like a flute.

Middle Babylonian and appears in only one occurrence.

'He made my throat's songs sweet and piping like a flute'.

malilu

Substantive.

A reed flute

Middle Babylonian.

'In his chest which sounds like a flute used for lamentations'.

'Clothe Tammuz with a red garment, let him play the lapis-lazuli flute', and: 'The piping flute the sound of which is sweet'.

malilu

Sumerian gidi

Substantive.

A male flautist.

malilu

Sumerian gis gigid

A flute.

Old Babylonian.

mar samas belu buli ina seri usaba ri'iti

The incipit of an incantation.

This incantation was to be recited by the slaughterer of the sacrificial bull during the daily sacrifices to the gods of the city of Uruk.

melulu

Substantive.

A player, actor.

Middle Babylonian.

mandu

Harp with a hand?

manu

Sumerian sid.

To change

manzu

Sumerian mese (ab meen)

Substantive.

A type of drum.

Middle Babylonian. Sumerian loanword.

'Let the lamentation priest kill the slave girl with his manzu'.

'To the accompaniment of the halhallatu-drum and the manzu and the sacred balag-instrument'.

'You sing to the accompaniment of a bronze manzu'

On the day of the eclipse of the moon:

'They will bring a halhalattu made of bronze, a manzu made of bronze, and a kettledrum made of bronze'. 'The captured gods whose eyes are on the manzu made of bronze'.

meku

Substantive.

A type of song.

Appears in a lexical list in one instance only.

merru

Substantive.

A type of song.

mindiu

Substantive.

A musical instrument.

Appears in only one instance in a lexical text. Probably a Sumerian loanword.

mihru

Sumerian kirugu

An antiphon.

mihru

Sumerian gisgigal

An antiphon.

mittu

Sumerian gis (tukul.dingir) mitta

A harp.

miritu

Sumerian gis mari

An instrument from Mari, perhaps a stringed instrument.

URIII and probably Old Babylonian.

mukil ale

Substantive.

A drummer.

Old Babylonian. Appears in only one occurrence in a lexical text.

mulapin ina seri epinni zeri ismidu

The incipit of an incantation which was sung whilst the miller ground his flour at the millstone; during the daily sacrifices to the gods of the city of Uruk.

mummilla

Substantive.

A dancer, player, actor.

Middle Babylonian.

'There is in it (Babylon) song and dance'.

'Dancing Istar, who gathers assemblies'.

Since melulu is often used in connection with Istar, her epithet mummiltu is cited here and is considered the feminine of the of the participle mummillu, instead of the expected mummillatu.

nalbitu

Substantive.

Possibly a metal musical instrument .

There is an instance where it is: ' with other copper implements sent to the king'.

munambu

Substantive.

A wailer.

The word occurs in only one instance in a lexical list. See nabu.

nagu

Sumerian gude

Verb.

To exult, to sing joyously.

namsub

Sumerian word, Akkadian siptu

A type of song, incantation.

See siptu.

nargallu

Sumerian nargal

Substantive.

The chief musician.

In Old Akkadian and Babylonian, Mari, Middle Babylonian and Neo Assyrian. It is a Sumerian loanword.

nartu

Sumerian munusnar

Substantive. Also nuaertu and na'ratu.

Female musician; in Old Babylonian and Mari.

'The musician female person x has died'.

'Nine silas of sasqu-flour for the female musicians'.

'Twelve young female musicians'.

'Oil ? for the women musicians'.

'Rations for 90 new (?) female musicians'.

'Two gur of barley for voluntary offerings, the responsibility of person x, the woman musician'.

'Eleven harem women, musicians from god x'.

In royal inscriptions:

'I received . . . female musicians as tribute from him'.

Neo-Babylonian text:

'Give me your daughter, the musician, that she may be my wife'.

nartur

Junior, young or apprentice musician.

naru

Sumerian lunar

Substantive.

Male musician.

Old Akkadian on. Sumerian loan word.

'Do not expel the young musician who knows how to play a stringed instrument'.

narutu

Sumerian namnar

Musicianship, music.

nasasu

Sumerian adsa

1) Wailing or improvisation.

2) Trills or tremolos on the grounds of its equation with Akkadian nasasu meaning to shake or to quiver.

ne'um

Verb

To loosen, of tuning pegs in the process of tuning the harp.

nibisu

The incipit of a musical composition copied during the Seleucid period from an older text.

nidqabli

Sumerian sa submurub

1) Name of the fourth descending scale of the Babylonian system, the enneatonic descending scale of D with anacrusis E = (e)-d-c-b-ag-f-e-d.

2) The seventh interval listed in tablet CBS 10996.

nigutu

Joyful music, merry making.

Old, and Middle Babylonian.

'In the month of life, at(?) the akitu-festival, let music be made'.

'Accompanied by musicians making music, I entered Niniveh'.

'Let tears be stopped, let there be singing for joy'.

'They spend their days in rejoicing and singing'.

'The king's prayer, that was my joy, and the accompanying music became a delight for me'.

'The beloved girl's wish is a joyful song'.

'Today, my heart, let us have dancing and singing'.

'the akitu-house in the open country, the house of joyful singing'.

nissatu

Substantive.

A wailer.

Middle Babylonian.

nisgabri

1) The third scale of the Babylonian scale system.

2) The enneatonic descending scale of A with anacrusis B: (b)-a-g-fe-d-c-b-a. Also the first interval listed in tablet CBS 10996.

nishu

Reed or wind instrument.

nitug nitigam

The incipit of a lamentation copied in the Seleucid period from an older text.

nubu

Substantive.

Wailing or lamentation

'I continue to spend every day in wailing and mourning'.

'His family gathered for bitter lamentations over him'.

papa

To intone, speaking of the voice or of strings.

pagu

Sumerian sali

A stringed instrument.

pismu

Interval or scale.

pitum

Gut string.

1) The fifth descending scale of the Babylonian system, the enneatonic descending scale of G with anacrusis A: (a)-g-f-e-d-c-b-a-g.

2) Also the thirteenth interval listed in CBS 10996.

qatnu

Sumerian sig

Adjective.

Thin, referring to the third (thin) string of stringed instruments.

qablitu

Sumerian murub

1) The ninth interval listed in CBS 10996.

2) The second scale of the Babylonian system, descending enneatonic scale of E with anacrusis F as: (f)-e-d-c-b-a-g-f-e.

qudmu

Sumerian sadi.

The fore-string of string instruments, numbered as one. The highest note of the scale.

qan bikiti

Sumerian giera

Reed-pipes used for laments.

qastu

Sumerian gis bantur

See tilpanu.

qubbu

Verb and substantive.

To lament, lamentation.

rebutu

The sixth interval listed in tablet CBS 10996.

rebi uhri

The 'fourth of the behind'-string, that is the sixth from the top note.

resatu

Sumerian asila

To acclaim in joy.

sabitu

also sebtu.

A musical instrument.

sa

Beautiful, or perfect to describe trills or tremolos. See adsa.

sag

Sumerian word.

Beginning of a song. Head of the song. Acrocratic.

sagarru

Substantive.

1) A musical instrument.

2) A type of song.

sagiddu

Substantive.

1) A stringed instrument.

2) A large net

sammu

Sumerian gis zami.

Substantive.

Probably a generic term for the angular harp.

Appears from Old Babylonian onward. It is a Sumerian loanword.

The lexical material has many entries all about variations the meaning of which obscure

'Do you know how to draw (?) the [. . .]-s, the top part (and) the . . . of the sammu the timbuttu, the harharu and all kinds of instruments'.

'Sammu inlaid with silver'.

'6 zami of gold

'Two harps, two black goatskins and five shekels of paint used for them'.

Probably an old type of the instrument.

'Gold loops for the harp of the male-singer'.

'Six gold harps, available to the male-musicians'.

'Four sammu(s) with gold mountings given for repair'.

With regard to performance:

'Let the male-singers praise the king of the gods with the harp'.

'O evil, let the young man go, let him pass through the square with (i.e., playing, or accompanied by) a harp'.

'Those who carry the harps'.

In metonymic use for the harp players:

'I entered my camp in joyous mood and among festivities and cymbals'.

In enumerations with other instruments:

'Oath taking of the harp and the sibati'.

'The chief-singer deposits his harp before the newly crowned king'.

In comparisons:

'Its ritual: you take the string of a harp and tie three knots and bind it on his right and left hands'.

'If he has harp-shaped)hands'.

A geometrical figure:

'If the pustule is like the geometric figure 'harp-ear"'.

'Is ear, because the hole in the opening of the harp'.

'26, 40 is the coefficient of the harp-ear'.

'53,20 is the coefficient of the x of the the area of the harp'.

'I have drawn one as the area of the harp'.

samsammu

Substantive.

Also zamzammu.

A bronze drum.

sassannu

A reed instrument.

In a list of musical reed pipes.

sasusi

Sumerian word

'Fingerstring', a technique used in the playing of stringed instruments.

si amma

A Sumerian word.

A temple hymn refers to a bull's horn, the si-am-ma which made the sound gumga.

sibatu

Substantive.

A harp.

Middle Babylonian

'The oath sworn by the harp and the sibatu-harp'.

si ezenak

Sumerian term.

To adjust the frets of a lute.

sigura

Sumerian term.

'Horn-blowing'.

The horn was used in streets to alert the public for announcements.

sihip

Term indicating a possible inversion of an interval or of a scale.

sikkatu

Substantive.

Pegs or nails of wood or metal.

These would have been used to set hides to drums or leather soundboards to harps or lutes.

sarahu

Verb

1) To sing.

2) A lamentation, or to have a lamentation performed.

'The singer who sings (this text, the Epic of Irra) will not die of the plague'.

sarahu has the meaning of 'to sing' only in late periods, as is the case with the use of sirhu, which means 'song' only in late texts.

sarihu

Sumerian balagdi

Professional mourner.

saruhu

Sumerian ilu balagdi

Lamentation priest.

samusu

Sumerian saus

'Next'-string , the second string from the top.

1) The name of a lament.

2) The last interval listed in tablet CBS 10996.

sinnatu

Substantive.

Also as sinnetu.

1) A wood-wind.

2) A wooden percussion instrument.

Appears in Middle Babylonian.

'Those (who play) the harp, the small-harp and the clapper, the (players) of the flute, of the sinnitu and of the long pipes'.

'O Istar, sinnatu whose voice resounds'.

'You present to Dumuzi a flute and a sinnatu which are set with gold'.

'Let the sinnatu call . . . . , let the resounding voice of your flute tear the disease out of my body'.

The correspondence to embubu identifies sinnatu in the last reference as a musical instrument but the entire line in which occurs is unintelligible.

sibatu

Substantive.

A stringed instrument.

In Middle Babylonian but occurs only in one occasion.

'The oath (sworn by) the harp and the sibatu'.

salsatu

The fourth interval listed in tablet CBS 10996.

salsu qatnu

'Third-thin'-string from the top.

salsu uhru

The 'third of the behind'-string, that is the seventh from the top.

sapu

To surge, to swell up and down.

Said of wailing voices.

samussu

The second string from the top.

sarru ittasa

The incipit of an incantation which was recited four times by the masmasu-priests.

seru

Sumerian kirugu

1) Part of a song.

2) The second interval listed in tablet CBS 10996.

sigu

Sumerian isis

A psalm of repent.

sikinsu

Sumerian mue.

The serpent, its form. Said of the balag.

sini uhri

Sumerian sa 2 agagul

'Second-of-behind'-string , the eighth from the top in tablet UET VII 126.

siptu

Sumerian en

An incantation.

sisku

Sumerian gisdim kakkak

Substantive.

Probably a wooden tuning peg. This type of peg would also have been used for the tightening of the hides on certain drums.

sir

Sumerian word.

A type of song.

sirgidda

Sumerian word.

A composition type.

sirkalkal

Sumerian word.

A composition type.

sirnam gala

Sumerian word.

A composition type.

sirnam sub

Sumerian word.

A composition type.

sirnam ursaga

Sumerian word

A composition type.

sitru

Singer of secular songs. See estalu.

susu

To tune down. Perhaps by the value of one semitone.

suhuzu

Blind children were taught (suhuzu) the musical art (narutu).

sukara

A fretted lute possibly.

sulpu

Sumerian gidi

A reed instrument.

sutesuru

Sumerian sisa

To set in order, speaking of strings.

tanittu

Sumerian zami

Laudatory musical piece.

tapalu

Sumerian gispapa.

Clappers.

tikitlu

Sumerian gis samindi

A small stringed instrument with a gourd as soundbox, or gourd shaped.

.

tilpanu

Sumerian gis bantur

A bow but also the small pentatonic arched harp. See qastu.

tigi

A type of composition.

timbuttu

A harp of the type god Narudda has hanging from his waist shown only on one statue.

titur qablitu

Bridge of the middle. The tenth interval listed in CBS 10996.

titur isartu

Bridge of the normal. The twelfth interval listed in tablet CBS 10996.

tuen

Sumerian word, Akkadian te sipti.

Conjuration formula of an incantation.

tutu

Sumerian, Akkadian siptu.

Incantation.

tuduqqu

Sumerian tudugga

Incantation.

tu

Sumerian tumu

Conjuration formula of an incantation.

tulu

Loosening of the strings.

ubarra

Sumerian enarki

House of the male singers with Ubaru.

ubaru

Sumerian enarmiki enarmiki

House of the female singers with Ubarum.

ud ana enlilla enki ankia mundimdimene

The incipit of a composition copied in the Seleucid period from an older text.

uddam kimus

The incipit of a lamentation.

uhru

Sumerian sa 1 agagul.

'One-of-the-behind'/'behind'-string2 , the bottom string, the ninth of the system from the top.

ululumama

A type of musical composition.

ulilla

A type of musical composition.

umun barkugga

Incipit of a lamentation.

umunsermallusu ankia

The incipit of a lamentation.

unu kinsigannake

The incipit of an incantation.

Ur Nanse

The Personal name of a singer, probably an eunuch from Mari.

urudu gur tur

Sumerian word.

Small copper sickles.

Copper-frog-instrument . This instrument would have produced a croaking sound or would have had the shape of a frog, perhaps an ocarina.

urudu nig kalaga

Sumerian word.

The nigkagulu cymbals. These cymbals are associated with the god Enlil and with the pair Ninsal/Nergal.

Ururlunar

Sumerian name

The personal name of a lutanist of the Akkadian period found on a seal cylinder.

urzabitu

Urzababa's instrument.

usumkalamma

Foremost of the land, or Great Dragon of the land, said of a Balag.

1) The personal name of a musician then at the service of the temple of Ningirsu under the reign of Gudea.

2) A name for Gudea's balag.

utu lugalam

The title of a composition written during the Seleucid period or, a few centuries earlier, from an older text. This song was specially dedicated to the gods Ea, Samas and Marduk.

walh

Hittite verb. To beat (of drums). Note the derivative forms. walhannai and walhanniski. This verb applied specifically to the beating of musical instruments whilst the verb hazzaki, the iterative form of hatta, 'to hit' became the general term meaning 'to play', said of string and percussion instruments.

zamaru

Sumerian endudu.

To sing with or without accompaniment of an instrument.

'I selected a song well suited for glorification'.

'On the occasion when two named singers performed a song before the king'.

'After the kalu-priests have finished the song'.

'The sorceresses cry out 'illuru' (others). . . the songs.

'Let the lady of Niniveh, the lady of songs, make my kingship famous forever'.

'Let me sing a song about belet x '.

'Is not a song about Mana sweeter than honey?'

'As it says in a song of Akkad (i.e. Babylonia), 'all people listen to you, my shepherd, on account of your sweet voice"

'I shall sing a song in praise of Istar. the queen (incipit) of a song'.

'The singer sings the song, 'He who opens the darkness', says 'You trample the evildoer underfoot', the singer washes his hands and offers the water to Samas'.

'If a woman of the palace personnel either sings or is engaged in quarrel with one of wqual rank wih her and someone stops and listens for sometime'.

zammaru

Substantive.

A singer.

zammeru

Feminine zammertu.

Singer of a special type.

'I am as good a singer as a she-donkey'.

There was a clear difference between the naru who was a skilled and trained singer and the zammeru who was either untrained or a singer of popular music.

zannaru

See zinar

Substantive.

A lyre.

zapaag

Sumerian word

Quality of a voice.

zinar

See zannaru above.

Hattic word used in Hittite. Akkadian zannaru.

A stringed musical instrument.

It has two sizes, gal and tur which are identified as Hittite hunzinar and ippizinar respectively.

'Then the great master of ceremonies goes out to the forecourt and says to the herald: zinar, zinar but the herald goes before the gate and says to the musicians: zinar, zinar. Then the musicians lift the Istar instruments. The herald marches in front of the musicians who carry in the Istar instruments.

zizi

To tune up.

Index of entries

aballu	388
abanu	388
abhinun	389
adapu	389
adapa	389
adaru	391
aga susi	391
aga balag	391
ahulab	392
akkadita amnu	392
akkadu	392
alala	392
algasurru	394
anahu	394
an lugalmu sadugazuse	394
alu	494
anu rabu same u ersetu likribuka	396
apsamikku	396
arkammi	396
arahhu	396
ariktu	396
arkammi	397
asar pitnu saknu	397
assinu	397
astalu	397
asipu	397
asu	398
asu kisri	398
atnu	398
basillatu	398
bakka'u	399
bakkitu	399
balbale	399
balaggu	402
bilzabalagir	402
bubatu	405
buru	405
dimahu	405
zamaru	405
du ga	405

sakiru 405
sabaru 405
dunnanu 406
ea balassu iqbli 406
egubbakugata 406
ekugabakugata 406
ekuga edingirene 406
elilu 406
embubu 406
embubu 407
endudu 407
Enheduanna 407
enuna anu ibnu same 407
epis balaggi 408
epis niguti 408
er 408
er imese 408
ersemma 408
ersahungu 408
esahungata 408
esgi 408
estalu 409
ezi gulgullude 409
gaga 409
galmahu 409
galgaturru 409
galaussu 409
galgaturu 410
galgaturi 410
gangittu 410
gasu 411
ge en 411
gidi 411
gir 411
gis ur narra 411
gis inanna 411
gis nimma 411
gis sukara 411
habasillatu 412
hibibu 412
hallatussu 412
halhallatu 412
halilu 412

halilu 413
hamsu 413
harharru 413
harru 413
hasisi 413
hasisu 414
hubbu 414
hubbu 414
huhupal 414
hunzinar 416
huppu 416
igigidakku 416
inhu 417
inu 417
isis 417
ikribu 417
ilu 417
ilulamma 418
immeru balaggi 418
ippizinar 418
irgidakku 418
isaharhubbakku 418
irsipittu 418
irsizkurakku 418
irsabadari 419
irsannisakku 419
irtu 419
isis 419
isartu 419
isaru 419
iskaru 420
istarutu 420
isteni sutesmu 420
isqu 420
jaruru 420
kainimma 420
kalamahu 421
kalu 421
kalutu 425
kamma 426
kamkammatu 426
kanzabu 426
karabu 426

karsu 426
kerru 426
kilu 426
kinnar uhuli 426
kinirtalla 427
kinnaru 427
kiskilatu 427
kiski'u 428
kissuratu 428
kisubu 428
kisu 428
kitmu 429
kiurguda 429
kugarru 429
kurgarru 429
kusgugalu 430
lallaru 430
lallaru 430
lapatu 430
laptu 431
lilissu 431
lugale ankia lugaltaea 433
lugale ezen sinmundu 433
lugaltaea sila kuga badibata 433
lusanu 433
magur munu 434
mahasu 434
malgatu 434
malahu 434
malhu 434
malilis 434
malilu 434
malilu 435
malilu 435
mar sama belu buli ina... 435
melulu 435
mandu 435
manu 435
manzu 435
meku 436
merru 436
mindiu 436
mihru 436

mihru 436
mittu 436
miritu 437
mukil ale 437
mulapin ina seri... 437
mummilla 437
nalbitu 437
munambu 437
nagu 438
namsub 438
nargallu 438
nartu 438
nartur 439
naru 439
narutu 439
nasasu 439
ne'um 439
nibisu 439
nidqabli 439
nigutu 440
nissatu 440
nishu 440
nitug nitigam 440
nubu 440
papa 441
pagu 441
pismu 441
pitum 441
qatnu 441
qablitu 441
qudmu 441
qan bikiti 442
qastu 442
qubbu 442
rebutu 442
rebu uhri 442
resatu 442
sabitu 442
sa 442
sag 442
sagarru 443
sagiddu 443
sammu 443

samsammu 444
sassannu 444
sasusi 444
si amma 444
sibatu 445
se ezenak 445
sigura 445
sihip 445
sikkatu 445
sarahu 445
sarihu 446
saruhu 446
samusu 446
sinnatu 446
sibatu 446
salsatu 447
salsu qatnu 447
salsu uhru 447
sapu 447
samussu 447
sarru ittasa 447
seru 447
sigu 447
sikinsu 447
sini uhri 448
siptu 448
sisku 448
sir 448
sirgidda 448
sirkalkal 448
sirnam gala 448
sirnam sub 448
sirnam ursaga 449
sitru 449
susu 449
suhuzu 449
sukara 449
sulpu 449
sutesuru 449
tinittu 449
tapalu 449
tikitlu 450
tilanu 450

tigi 450
timbuttu 450
titur qablitu 450
titur isartu 450
tuen 450
tutu 450
tuduqqu 450
tu 451
tulu 451
ubarra 451
ubaru 451
ud ana enlilla enki ... 451
uddam kimus 451
uhru 451
ululumama 451
ulilla 451
umun barkugga 451
umunsermallusu ankia 452
unu kinsigannake 452
Ur nanse 452
urudu gur tur 452
urudu nig kalaga 452
Ururlunar 452
urzabitu 452
usumkalamma 452
utu lugalam 453
walh 453
zamaru 453
zammaru 453
zammeru 453
zannaru 453
zapa ag 453
zinar 453
zizi 453

Indices

Provisional list of bibliographical abbreviations 463

Selective musical bibliography
articles 499
books 505

List of econographical numbering 507
General index 520

List of bibliographical abbreviations

The following list corresponds to the abbreviations used by the Chicago Assyrian Dictionary; Archiv für Orientforschung, Wolfram von Soden; Grundriß der akkadischen Grammatik, and Zeitschrift für Assyriologie. The volume does not quote the integrality of the abbreviations below but they are listed here for further referencial purposes.

A	Lexical series. Pub. Civil, MSL 14.
A	Tablets in the collection of the Oriental Institute, Univer sity of Chicago.
A-tablet	Lexical text, see MSL 13 10 ff.
AAA	Annals of Archaeology and Anthropology.
AAAS	Annales Archéologiques Arabes Syriennes.
AASF	Annales Academiae Scientarum Fennicae.
AASOR	The Annual of the American Schools of Oriental Re search.
AB	Assyriologische Bibliothek.
ABAW	Abhandlungen der Bayerischen Akademie der Wissenschaften.
AbB	Altbabylonische Briefe in Umschrift und Übersetzung.
Abel	-Winckler L.Abel and H. Winckler, Keilschrifttexte zum Gebrauch bei Vorlesungen
ABIM	A. al-Zeebari, Altbabylonische Briefe des Iraq-Museums.
ABL	R.F. Harper, Assyrian and Babylonian letters.
ABoT	Ankara arkeoloji muzesinde bulunan Bogazkoy Tableteri.
AbS-T	Field numbers of Pre-Sar. Tablets excavated at Tell Abu Salabikh.
Ach	C. Virolleaud, L'Astrologie chaldéenne.
Acta Or.	Acta Orientalia.
Actes	du 8e Actes du 8e Congrès International des Orientalistes, Section Sémitique (B). congrès International
ADD	C.H.W. Johns, Assyrian Deeds and Documents.
AfK	Archiv f..r Keilschriftforschung .
AfO	Archiv f..r Orientforschung.
AGM	Archiv für Geschichte der Medizin.
AHDO	Archives d'histoire du droit oriental.
AHw	Wolfram von Soden, Akkadisches Handw..rterbuch .
Ai.	Lexical series ki.KI.KAL.bi.šè = *ana ittišu*, pub. Landsberger, MSL 1.
AIPHOS	Annuaire de l'Institut de Philosophie et d'Histoire Orientales et Slaves (Brussels)
Aistleitner	J. Aistleitner, Wörterbuch der ugaritischen Sprache. Wörterbuch

AJA American Journal of Archaeology.
AJSL American Journal of Semitic Languages and Literatures.
AKA E.A.W. Budge and L.W. King, The Annals of the Kings of Assyria.
Ali Sumerian F.A. Ali, Sumerian Letters: Two Collections from the Old Babylonian Schools Letters (Ph.D. diss., Univ. of Pennsylvania 1964).
Alp Beamten- A. Alp, Untersuchungen zu den Beamtennamen im hethitischen namen Festzeremoniell.
Altmann, ed., A. Altmann, ed., Biblical and Other Studies (= Philip W. Lown Biblical and Institute of Advanced Judaic Studies, Brandeis University, Other Studies Studies and Texts: v.1).
AMI Archäologische Mitteilungen aus Iran.
AMUSH Abhandlungen aus dem mathematischen Seminar der Universität Hamburg.
AMT R.C. Thompson, Assyrian Medical Texts . . .
An Synonym list AN = *šamû*.
An = *Anum* List of gods.
An = *Anum ša* List of gods.
Anatolian Anatolian Studies Presented to Hans Gustav Gütterbock. Studies Gütterbock
AnBi Analecta Biblica.
Andrae W. Andrae, Die Festungswerke von Assur (= WVDOG 23 Festungswerke
Andrae W. Andrae, Die Stelenreihen in Assur (= WVDOG 24). Stelenreihen
ANEP James B. Pritchard, The Ancient Near East in Pictures.
ANES Journal of the Ancient Near Eastern Society of Columbia University.
Angim Epic Angim dimma, cited from MS. of A. Falkenstein (lines nos. in parentheses according to Cooper Angim).
An Or Analecta Orientalia.
AnSt Anatolian Studies.
Antagal Lexical series antagal = *šaqû*, pub. M.T. Roth, MSL 17.
AO Tablets in the collection of the Musée du Louvre.
AOAT Alter Orient und Altes Testament.
AÖAW Anzeiger der Österreichischen Akademie der Wissenschaften.
AOB Altorientalische Bibliothek.
AoF Altorientalische Forschungen.
AOS American Oriental Series.
AOTU Altorientalische Texte und Untersuchungen.

APAW Abhandlungen der Preussischen Akademie der Wissenschaften. Arkeologya Türk Tarih, Arkeologya ve Ethnografya Dergisi.

ARM Archives Royales de Mari (1-10 = TCL 22-31; 14, 18, 19, 21 =Textes cunéiformes de Mari 1-3, 5).

ARMT Archives Royales de Mari (texts in transliteration and trans lation).

Arnaud D. Arnaud, Recherches au pays d'Aštata: Emar 6.

Aro Glossar J. Aro, Glossar zu den mittelbabylonischen Briefen (= StOr 22).

Aro Gramm. J. Aro, Studien zur mittelbabylonischen Grammatik (= StOr 20).

Aro Infinitiv J. Aro, Die Akkadischen Infinitivkonstruktionen (= StOr 26).

Aro Kleider- J. Aro mittelbabylonische Kleidertexte der Hilprecht-Sammlung texte jena (= BSAW 115/2).

ArOr Archiv Orientálni.

ARU J. Kohler and A. Ungnad, Assyrische Rechtsurkunden.

AS Assyriological Studies, Oriental Institute, University of Chicago.

ASAW Abhandlungen der Sächsischen Akademie der Wissenschaften Akademie der Wissenschaften.

ASGW Abhandlungen der Sächsischen Gesellschaft der Wissenschaten.

Ashm. Tablets in the collections of the Ashmolean Museum, Oxford.

ASKT P. Haupt, Akkadische und Sumerische Keilschrifttexte . . .

ASSF Field numbers of tablets excavated at Assur.

Augapfel J. Augapfel, Babylonische Rechtsurkunden aus der Regierungszeit

Artarxerxes I und Darius II.

Aynard Asb. J.-M. Aynard, Le prisme du Louvre AO 19.939.

BA Beiträge zur Assyriologie . . .

Bab. Babyloniaca.

Bagh. Mitt. Baghdader Mitteilungen.

Balkan Kassit. K. Balkan, Kassitenstudien (=AOS 37).Stud.

Balkan Letter K. Balkan, Letter of King Anum-Hirbi of Mama to King Warshama of Kanish.

Balkan K. Balkan, Observations on the Chronological Problems of the Observations .....

Balkan K. Balkan, Eine Schenkungsurkunde aus der althethitischen Zeit, Schenkungs- gefunden in Inandik 1966. urkunde

Barton	MBI G.A. Barton, Miscellaneous Babylonian Inscriptions.
Barton	RISA G.A. Barton, The Royal Inscriptions of Sumer and Akkad.
BASOR	Bulletin of the American Schools of Oriental Research.
Bauer	Asb. Bauer, Das Inschriftenwerk Assurbanipals.
Bauer	Lagasch J. Bauer, Altsumerische Wirtschaftstexte aus Lagasch (= Studia Pohl 9).
Baumgartner	Hebräische Wortforschung, Festschrift zum 80. Geburrtstag von AV Walter Baumgartner (= VT Supp. 16).
BBK	Berliner Beiträge zur Keilschriftforschung.
BBR	H. Zimmern, Beiträge zur Kenntnis der babylonischen Religion.
BBSt.	L.W. King, Babylonian Boundary Stones.
BE	Babylonian Expedition of the University of Pennsylvania, Series A: CuneiformTexts.
Belleten	Türk Tarih Kurumu, Belleten. Bergmann E. Bergmann, Lugale (in MS.).Lugale
Bezold	Cat. C. Bezold, Catalogue of the Cuneiform Tablets in the Kouyunjik Collection of the British Museum.
Bezold	Cat. L.W. King, Catalogue of the Cuneiform Tablets of the British Supp. Museum. Supplement.
Bezold	Glossar C. Bezold, Babylonisch-assyrisches Glossar.
BHT	S. Smith. Babylonian Historical Texts.
BiAr	The Biblical Archaeologist.
Bib.	Biblica.
Biggs	Al-Hiba R.D. Biggs, Inscriptions from Al-Hiba-Lagash: The First and Second Seasons.
Biggs	Šaziga R.D. Biggs, ŠA.ZI.GA: Ancient Mesopotamian Potency Incantations (= TCS 2).
Bilgiç	Appel- E. Bilgiç, Die Einheimischen Appelativa der kappadokischen Texte . . .lativa der Texte
BiMes	Bibliotheca Mesopotamica.
BIN	Babylonian Inscriptions in the Collection of J.B. Nies.
BiOr	Bibliotheca Orientalis.
Birot	M. Birot, Tablettes économiques et administratives d'époque babylonienne Tablettes ancienne conservées au Musée d'art et d'Histoire de Genève.
Black	Sum. J.A. Black, Sumerian Grammar in Babylonian Theory.
BM	Tablets in the collection of the British Museum.
BMAH	Bulletin des Musées Royaux d'Art et d'Histoire.
BMFA	Bulletin of the Museum of Fine Arts.
BMMA	Bulletin of the Metropolitan Museum of Art.

BMQ The British Museum Quarterly.
BMS L.W. King, Babylonian Magic and Sorcery.
Bo. Field numbers of tablets excavated at Bohghazkeui.
Böhl Chres- F.M.T. Böhl, Akkadian Chrestomathy.
Böhl Leiden F.M.T. Böhl, Mededeelingen uit de Leische Verzameling van Coll. Spijkerschrift-Inscripties.
Boissier Choix A. Boissier, Choix de textes relatifs à la divination assyro-babylonienne.
Boissier DA A.Boissier, Documents assyriens relatifs aux présages.
Böllenrücher J. Böllenrücher, Gebete und Hymnen an Nergal (= LSS Beiheft 9). Nergal
BOR Babylonian and Oriental Record.
Borger R. Borger, Einleitung in die assyrischen Königsinschriften. Einleitung
Borger Esarch. R. Borger, Die Inschriften Asarhaddons, Königs von Assyrien (= AfO Beiheft 9).
Borger HKL R. Borger, Handbuch der Keilschriftliteratur.
Borger R. Borger, Assyrisch-babylonische Zeichenliste (= AOAT 33/33A).Zeichenliste
Boson G. Boson, Tavolette cuneiformi sumere . . .Tavolette
BoSt Boghazköi-Studien.
BoTU Die Boghazköi-Texte in Umschrift . . . (= WVDOG 41-42).
Boudou Liste A. Boudou, Liste de noms géographiques (= Or. 36-=38).
Boyer Contribution
BPO E. Reiner and D. Pingree, Babylonian Planetary Omens (= BiMes 2).von Branden C.G. von Brandenstein, Hethitische Götter nach Bildbeschreibungen.stein Heth. In Keilschrifttexten (= MVAG 46/2). Götter
Brinkman J.A. Brinkman, Materials and Studies for Kassite History. MSKH
Brinkman J.A. Brinkman, A Political History of Post-Kassite Babylonia, 1158-722 B.C. PKB (= AnOr 43).
BRM Babylonian Records in the Library of J. Pierpont Morgan.
Brockelmann C. Brockelmann, Lexicon syriacum, 2*nd ed.* lex.Syr.2
BSAW Berichte der Sächischen Akademie der Wissenschaften.
BSGW Berichte der Sächischen Gesellschaft der Wissenschaften.
BSL Bulletin de la Société de Linguistique de Paris.
BSOAS Bulletin of the School of Oriental and African Studies.
Bu. Tablets in the collections of the British Museum.
Bull. On Sum. Bulletin on Sumerian Agriculture.

CAD The Assyrian Dictionary of the Oriental Institute of the University of Chicago.
Cagni Erra L. Cagni, L'epopea di Erra.
Camb. J.N. Strassmaier, Inschriften von Cambyses.
Cassin An- E. Cassin, Anthroponymie et Anthropologie de Nuzi. throponymie
CBM tablets in the collections of the University Museum of the University of Pennsylvania, Philadelphia (= CBS).
CBS tablet in the collections of the University Museum of the University of Pennsylvania, Philadelphia.
CCT Cuneiform Texts from Cappadocian Tablets.
Chantre E. Chantre, Recherches Archéologiques dans l'Asie occidentale. Mission en Cappadoce 1893-94.
Charpin D. Charpin, Archives familiales et propriété privée . . . Tell Sifr. Archives Familiales.
Charpin- D. Charpin and J.-M. Durand, documents cunéiformes de Strasbourg Durand conservés à la Bibliothèque Nationale et Universitaire. Strasbourg
Chiera STA E. Chiera, Selected Temple Accounts from Telloh, Yokha and Drehem. Cuneiform Tablets in the Library of Princeton University.
Christian Festschrift für Prof. Dr. Viktor Christian. Festschrift
Çig- Kizilyay M. Çig, H. Kizilyay, Neusumerische Rechts- und Verwaltungsurkunden NRVN aus Nippur.
Çig- Kizilyay- M. Çig, H. Kizilyay, and S.N. Kramer, Sumerian Literary Tablet and Fragments Kramer ISET in the Ar chaeological Museum of Istambul.
Çig- Kizilyay- M. Çig, H. Kizilyay (Bozkurt), and F.R. Kraus, Altbabylonische Rechtsurkunden
Kraus Nippur aus Nippur.
Çig- Kizilyay- M. Çig, H. Kizilyay, and A. Salonen, Die Puzriš-Dagan-Texte (= AASF B92) Salonen Puzriš-Dagan Texte
Clay PN A.T. Clay, Personal Names from Cuneiform Inscrip tions of the Cassite Period (= YOR 1).
Cocquerillat D. Cocquerillat, Palmeraies et cultures de l'Eanna d'Uruk (559-520). Palmeraies
Coll. De Clercq H.F.X. de Clercq, Collection de Clercq. Cata logue . . .
Combe Sin E. Combe, Histoire du culte de Sin en Babylonie et en Assyrie.
Contenau G. Contenau, Contribution à l'histoire économique d'Umma. Contribution

Contenau	G. Contenau, Umma sous la Dynastie d'Ur. Umma
Cooper	Angim J. Cooper, The Return of Ninurta to Nippur (= AnOr 52).
Copenhagen	tablets in the collections of the National Museum, Copenhagen.
Corpus of	E. Porada, Corpus of Ancient Near Eastern Seals in Ancient near North American Collections. Eastern seals
CRAI	Académie des Inscriptions et Belles Lettres. Comptes rendus.
Craig	AAT J.A. Craig, Astrological-Astronomical Texts.
Craig	ABRT J.A. Craig, Assyrian and Babylonian Religious Texts.
Cross Tello	G. Cros, Mission française de chaldée. Nouvelles fouilles de Tello.
CRRA	Compte rendu, Rencontre Assyriologique Internationale.
CT	Cuneiform Texts from Babylonian Tablets.
CTN	Cuneiform Texts from Nimrud.
Cyr.	J.N. Strassmaier, Inschriften von Cyrus.
DAFI	Cahiers de la Délégation Archéologique Française en Iran.
Dalley	S. Dalley, A catalogue of the Akkadian cuneiform tablets in the collections Edinburg of the Royal Scot tish Museum, Edinburg.
Dalley-	S. Dalley and J.N. Postgate, The Tablets from Fort Shalmaneser (= CTN 3) . Postgate Fort Shalmaneser
Dalman	G.H. Dalman, . . . Aramäisch-neuhebräisches Wörterbuch zu Targum, Aram. Wb. Talmud und Midrasch.
Dandamaev	M.A. Dandamaev, Slavery in Babylonia from Nabopolassar to Slavery Alexander the Great.
Dar.	J.N. Strassmaier, Inschriften von Darius.
David	AV J.A. Ankum, R. Feenstra, W.F. Leemans, eds., Symbolae iuridicae et historicae Martino David dedicatae. Tomus alter: Iura Orientis antiqui.
Deimel Fara	A. Deimel, Die Inschriften von Fara (= WVDOG 40, 43, 45).
Delaporte	L.J. Delaporte, Catalogue des cylindres orientaux . . . de la Catalogue Bibliothèque Nationale.
Delaporte	L.J. Delaporte, Catalogue des cylindres . . . Musée du Louvre.

Delaporte	L.J. Delaporte, Catalogue des cylindres orientaux . . . de la Catalogue Bibliothèque Nationale.
Delaporte	L.J. Delaporte, Catalogue des cylindres . . . Musée du Louvre.
Delitzsch	AL3 F. Delitzsch, Assyrische Lesestücke , 3rd ed.
Delitzsch	F. Delitzsch, Assyrische Handwörterbuch. HWB
Dietrich	M. Dietrich, Die Aramäer Südbabyloniens in der Sargonidenzeit (= AOAT 7). Aramäer
Dillard	NB R.B. Dillard, Neo-Babylonian Texts from the John Frederick Lewis Collection Lewis Coll. of the Free Library of Philadelphia (Ph.D. diss., Dropsie Univ. 1975).
Diri	Lexical series diri DIR .....
Divination	J. Nougayrol, ed., La divination en Mésopotamie ancienne et dans les régions voisines.
DLZ	Deutsche Literaturzeitung.
Doty Uruk	L.T. Doty, Cuneiform Archives from Hellenistic Uruk (Ph. D. diss., Yale Univ. 1977). van Driel Cult G. van
Driel,	The Cult of Aššur.
D.T.	Tablets in the collections of the British Museum.
Durand	J.-M. Durand, Documents cunéiformes de la IV*e* Section de l'école Catalogue EPHE Pratique des Hautes Etudes.
Durand	Textes J.-M. Durand, Textes babyloniens d'époque récente. babyloniens
Ea	Lexical series ea A = nâqu, pub. Civil, MSL 14.
EA	J.A. Knudtzon, Die El-Amarna-Tafeln (= VAB 2); EA 359-79: Rainey EA.
Eames Coll.	A.L. Oppenheim, Catalogue of the Cuneiform Tablets of the Wilberforce Eames Babylonian Collection in the New York Public Library (= AOS 32).
Eames	Col- Tablets in the Wilberforce Eames Babylonian Collection in the New York
Ebeling	E. Ebeling, Glossar zu den neubabylonischen Briefen (= SBAW 1953/1).
Ebeling	E. Ebeling, Die akkadische Gebetsserie "handerhebung" (= VIO 20).
Ebeling	KMI E. Ebeling, Keilschrifttexte medizinischen Inhalts.
Ebeling	E. Ebeling, Neubabylonische Briefe (=ABAW NF 30). Neubab.
Ebeling	E. Ebeling, Neubabylonische Briefe aus Uruk.

Ebeling	E. Ebeling, Parfümrezepte und kultische texte aus Assur (also pub. In Or.Parfümrez. NS 17-19).
Ebeling	E. Ebeling, Stiftungen und vorschriften für assyrische Tempel (= VIO 23).
Ebeling	E. Ebeling, Bruchstücke einer mittelassyrischen Vorschriftensammlung Wagenpferde für die Akklimatisierung und Trainierung von Wagenpferden (= VIO 7).
Edel	E. Edel, Ägyptische Ärzte und ägyptische Medizin am Hethitischen Ägyptische Königshof.
Edzard	Tell D.O. Edzard, Altbabylonische Rechts- und Wirtschaftsurkunden aus Tell ed-Der ed-Der (= ABAW NF 72).
Edzard	D.O. Edzard, Die "Zweite Zwischenzeit" Babyloniens. Zwischenzeit
Eilers	W. Eilers, Iranische Beamtennamen in der keilschriftlichen Überlieferung Beamten- (= Abhandlungen für die Kunde des Morgenlandes 25/ 5).
Eilers	W. Eilers, Gesellschaftsformen im altbabylonischen Recht. Gesellschaftsformen
Emesal Voc.	Lexical series dimmer = dingir = *ilu,* pub. Landsberger, MSL 4 3-44.
EN	Excavations at Nuzi (EN 9/1 pub. in SCCNH 2).
Erimhuš	Lexical series erimhuš = *anantu*, pub. Chavigneaux, MSL 17
Erimhuš	Bogh. Boghazkeui version of Erimhuš, pub. Gütterbock, MSL 17.
Eshnunna	Code see Goetze LE.
Evetts	App. B.T.A. Evetts, Inscriptions of . . . Evil-Merodach . . . Appendix.
Evetts	Ev.-M. B.T.A. Evetts, Inscriptions of . . . Evil-Merodach . . .
Evetts	Lab. B.T.A. Evetts, Inscriptions of . . . Laborosoarchod.
Evetts	Ner. B.T.A. Evetts, Inscriptions of . . . Neriglissar . . .
Explicit	Malku Synonym list malku = šarru, explicit version (Tablets I-II pub. A.D. Kilmer, JAOS 83 421 ff.).
Fadhil	A. Fadhil, Studien zur Topographie der Provinzstäde des Arraphe Königsreichs Arraphe.
Fales	Censi- F.M. Fales, Censimenti e catasti di epoca neo-assira.
Falkenstein	A. Falkenstein, Archaische Texte aus Uruk.

Falkenstein	A. Falkenstein, Das Sumerische (= Handbuch der Orientalistik, Erste Abteilung, Das Sume- Zweiter Band, Erster und Zweiter Abschnitt, Lieferung I).
Falkenstein	A. Falkenstein, Die neusumerischen erichtsurkunden (ABAW NF 39, 40, 44). Gerichtsurkunden
Falkenstein	A. Falkstein, Sumerische Götterlieder.
Falkenstein	A. Falkenstein, Grammatik der Sprache Gudeas von Lagaš (AnOr 28 and 29).
Falkenstein	A. Falkenstein, Die Haupttypen der sumerischen Beschwörung (= LSS NF 1).
Falkenstein	A. Falkenstein, Topographie von Uruk. Topographie
Farber Ištar	W. Farber, Beschwörungsrituale an Ištar und Dumuzi. und Dumuzi Festschrift Festschrift für Wilhelm Eilers: Ein Dokument der internationalen Forschung.
FF	Forschungen und Fortschrifte.
Figulla Cat.	H.H. Figulla, Catalogue of the Babylonian Tablets in the British Museum.
Figurative	M.Mindin, M.J. Geller, and J.E. Wansbrough, eds., Figurative Language Language in the Ancient Near East.
Finet	A. Finet, L'Accadien des lettres de Mari. L'Accadie
Finkelstein	Essays on the Ancient Near East in Memory of Jacob Joel Finkelstein. Mem. Vol.
Fish Catalogue	T. Fish, Catalogue of Sumerian Tablets in the John Rylands Library.
Fish Letters	T. Fish, Letters of the First Babylonian Dynasty in the John Rylands Library, Manchester.
FLP	Tablets in the collections of the Free Library of Phila delphia.
Fränkel	S. Fränkel, Die aramäischen Fremdwörter im Arabischen.
Frankena	R. Frankena, ..., De sacrale Maaltijd in het assyrische Ritueel.Takultu
Frydank	H. Freydank, Spätbabylonische Wirtschaftstexte aus Uruk. Wirtschaftstexted
Friedrich	R. von Kienle, ed., Festschrift Johannes Friedrich . . .
Friedrich	J. Friedrich, Die hethitischen Gesetze . Gesetze (= Documenta et monumenta orientis antiqui 7)
Friedrich	J. Friedrich, Die Hethitisches wörterbuch . . . Heth. Wb.

Friedrich	J. Friedrich, Staatsverträge des .....-Reiches in hethitischer Staatsver- Sprache (= MVAG 34/1).
träge	
FuB	Forschungen und Berichte.
Gadd Early	C.J. Gadd, The Early Dynasties of Sumer and Akkad.
Dynasties	
Gadd Ideas	C.J. Gadd, Ideas of Divine Rule in the Ancient Near East.
Gadd	C.J. Gadd, Teachers and Students in the Oldest Schools.
Gandert	A. von Müller, ed., Gandert Festschrift (= Berliner Beiträge zur Vor Festschrift und Frügeschichte 2).
Garelli Gilg.	P. Garelli, Gilgameš et sa légende. Etude recueillies par Paul Garelli à l'occasion de la VII*e Rencontre Assyriologique Internationale (Paris, 1958).*
Garelli Les	P. Garelli, Les Assyriens en Cappadoce.
Assyriens	
Gaster	AV Occident and Orient (Studies in Honour of M. Gaster).
Gautier	J.E. Gautier, Archives d'une famille de Dilbat . . .
Dilba	
	GCCI R.P. Dougherty, Goucher College Cuneiform Inscriptions.
Gelb	OAIC I.J. Gelb, Old Akkadian Inscriptions in Chicago Natural History Museum.
	Genouillac H. de Genouillac, Premières recherches archéologiques à Kich.
Genouillac	H. de Genouillac, La trouvaille de Dréhem.
Trouvaille	
Genouillac	TSA H. de Genouillac, Tablettes sumériennes archaïques.
Genesius 17	W. Genesius, Hebräisches und aramäisches Handwörterbuch 17th ed.
GGA	Göttingische Gelehrte Anzeigen.
Gibson-Biggs	M. Gibson and R.D. Biggs, eds., Seals and Sealings in the Ancient Near East.
Gilg.	epic, cited from Thampson Gilg. (M. = Meissner Fragment, OB version of Tablet X, P. = Pennsylvania Tablet, OB Version of Tablet II, Y. = Yale Tablet, OB Version of Tablet III).
Gilg. O.I.	OB Gilg. Fragment from Ishchali pub. By T. Bauer, JNES 16 254 ff.

Goetze	A. Goetze, Der Bericht über seine Thronbesteigung nebst den ..... Paralleltexten (= MVAG 29/3)
Goetze	Kizzuwatna Problem of Hittite Geography (= YOR 22).
Goetze	LE A. Goetze, The Laws of Eshnunna (= ASSOR 31).
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Golénischeff	V.S. Golénischeff, Vingt-quatre tablettes cappadociennes . . .
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Gordon	C.H. Gordon, Ugaritic Handbook (= AnOr 25). Handbook
Gordon	Smith C.H. Gordon, Smith College Tablets . . . (= Smith College Studies in History, College Vol. 38).
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Grayson	A.K. Grayson, Babylonian Historical-Literary Texts (= TCS 3).
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Guest Notes	E. Guest, Notes on Trees and Shrubs from Lower Iraq.
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Güterbock	H.G. Güterbock, Siegel aus .....(= AfO Beiheft 5 and 7).

Hallo Royal	W.W. Halo, Early Mesopotamian Royal Titles (=AOS 43).
Hartmann	H. Hartmann, Die Musik der sumerischen Kultur. Musik
Haupt	P. Haupt, Das babylonische Nimrodepos.
Haverford	E. Grant, ed., The Haverford Symposium on Archaeo logy and the Bible.
Hecker	H. Hecker, Die Keilschrifttexte der Universitätbibliothek Giessen.
Hecker	H. Hecker, Grammatik der Kültepe-Texte (= AnOr 44).
Heimpel	W. Heimpel, Tierbilder in der sumerischen Literatur (= Studia Pohl 2).
Herzfeld	API E. Herzfeld, Altpersische Inschriften.
Hewett	An- D.D. Brand and F.E. Harvey, eds., So Live the Works of Men: niversary Seventieth Anniversary Volume Honoring Edgar Lee Hewett. vol.
Hg.	Lexical series ..... = *ballu,* pub. MSL 5-11.
HG	J. Kholer et al., Hammurabi's Gesetz.
Hh	Lexical series .....ra =.....(Hh. I-IV pub. Landsberger, MSL 5;
Hh.	V-VII pub. Landberger MSL 6; Hh. VIII-XII pub. Landsberger, MSL 7; Hh. XIII-XIV, XVIII pub. Landsberger, MSL 8; Hh. XV pub. Landsberger, MSL 9; Hh. XVI-XVII, XIX pub. Landsberger and Reiner, MSL 10; Hh. XX-XXIV pub. Landsberger and Reiner MSL 11).
Hilprecht	AV Hilprecht Anniversary Volume. Studies in Assyriology and Archaeology dedicated to Hermann V. Hilprecht.
Hilprecht	H.V. Hilprecht, The Earliest Version of the Babylonian Deluge Story Deluge Story and the Temple Library of Nippur.
Hinke	Kudurru W.J. Hinke, Selected Babylonian Kudurru Inscriptions, No. 5, pp. 21-27.
Hinz	AFF W. Hinz, Altiranische Funde und Forschungen.
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Hoffner	H.A. Hoffner, Alimenta Hethaeorum (= AOS 55). Alimenta
Holma	H. Holma, Kleine Beiträge zum assyrischen lexikon (= AASF B 7/2).
Holma	H. Holma, Die Namen der Körperteile im Assyrisch-babylonischen Körperteile (= AASF B 7).
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Holma	H. Holam, Die assyrisch-babylonischen Personennamen der Form Quttulu. Quttulu (= AASF B 13/2.
Holma	H. Holma, Weitere Beiträge zum assyrischen Lexikon (= ASSF B 15/1). Weitere Beitr.
Hrozný Code	F. Hrozný, Code hittite provenant de l'Asie Mineure. Hittite
Hrozný	F. Hrozný, Das Getreide im alten Babylonien . . . (= SAWW 173/1). Getreide
Hrozný	F. Hrozný, Inscriptions cunéiformes du Kultépé (= ICK 1) Kultepe (= monogr. ArOr 14).
Hrozný	F. Hrozný, Die Keilschrifttexte von Ta'annek, in Selin Ta'annek.
HS	Tablets in the Hilprecht collection, Jena.
HSM	Tablets in the collections of the Harvard Semitic Museum.
HSS	Harvard Semitic Series.
HUCA	Hebrew Union College Annual.
Hunger	H. Hunger, Babylonische und assyrische Kolophone Kolophone (= AOAT 2).
Hunger Uruk	H. Hunger, Spätbabylonische Texte aus Uruk, 1.
Hussey	M.I. Hussey, Sumerian Tablets in the Harvard Semitic Museum Sumerian (= HSS 3 and 4).
IB	Tablets in the collections of the Pontificio Istituto Biblico, Rome.
IBoT	Istambul Arkeoloji Müzelerinde Bulunan ..... Tableteri.
Ichisar	Imdilum M. Ichisar, Les archives cappadociennes du marchand Imdilum.
ICK	Inscriptions cunéiformes du Kultépé.
Idu	lexical series Á = *idu.*
IEJ	Israel Exploration Journal.
IF	Indogermanische Forschungen.
Igituh	Lexical series ..... Igituh short version pub. Landsberger and Gurnet, AfO 18 81 ff.

ILN Illustrated London News.
IM Tablets in the collections of the Iraq Museum, Baghdad.
Imgidda to see Erimhuš.
IOS Israel Oriental Studies.
Istambul Tablets in the collections of the archaeological Museum of
ITT Inventaires des tablettes de Tello.
Izbu Comm. Commentary to the series šumma izbu, pub. Leichty, Izbu pp. 211-233.
Izi Lexical series izi = ..., pub. Civil, MSL 13 154-226.
Izi Bogh. Boghazkeui version of Izi, pub. Civil, MSL 13 132-147.
JA Journal asiatique.
Jacobsen T. Jacobsen, Cuneiform Texts in the National Museum, Copenhagen.
Jankowska KTK N.B. Jankowska, Klinopisnye teksty iz Kjul-Tepe v sobraniiakh SSSR.
JAOS Journal of the American Oriental Society.
Jastrow Dict. M. Jastrow, A Dictionary of the Targumim . . .
JBL Journal of Biblical Literature.
JCS Journal of Cuneiform Studies.
JEA Journal of Egyptian Archaeology.
JEN Joint Expedition with the Iraq Museum at Nuzi.
JENu Joint Expedition with the Iraq Museum, unpub.
JEOL Jaarbericht van het Vooraziatisch-Egyptish Genootschap "Ex Oriente Lux".
JESHO Journal of the Economic and Social History of the Orient.
Jestin NTSŠ R. Jestin, Nouvelles tablettes sumériennes de Šuruppak.
Jestin R. Jestin, Tablettes sumériennes de Šuruppak.
Šuruppak
JJP Journal of Juristic Papyrology.
JKF Jahrbuch für kleinasiatische Forschung.
JNES Journal of Near Eastern Studies.
Joannès F. Joannès, Textes économiques de la Babylonie récente.
Textes économiques
Johns Dooms- C.H.W. Johns, An Assyrian Doomsday Book.
Day Book
Jones- Snyder T.B. Jones and J. Snyder, Sumerian Economic Texts from the Third Ur Dynasty.
JPOS Journal of the Palestine Oriental Society.
JQR Jewish Quarterly Review.
JRAS Journal of the Royal Asiatic Society.
JSOR Journal of the Society of Oriental Research.

JSS Journal of Semitic Studies.
JTVI Journal of the Transactions of the Victoria Institute.
K. Tablets in the Kouyunjik collection of the British Museum.
Kagal Lexical series kagal = *abullu,* pub. Civil, MSL 13 227-261.
KAH Keilschrifttexte aus Assur historischen Inhalts.
HAJ Keischrifttexte aus Assur juristischen Inhalts.
...., Saarbrücker Beiträge zur Altertumskunde.
Kang SACT S. Kang, Sumerian and Akkadian Cuneiform Texts in the Collection
of the World History Museum of the University of Illinois.
KAR Keilschrifttexte aus Assur religiösen Inhalts.
KAV Keilschrifttexte aus Assur verschiedenen Inhalts.
KB Keilinschriftliche Bibliothek.
Kbo Keilschrifttexte aus Boghazköy.
Kent Old Persian R.G. Kent, Old Persian . . . (= AOS 33).
Ker Porter R. Ker Porter, Travels in Georgia, Persia, Armenia, Ancient Babylonia, etc. . . .
Kh. Tablets from Khafadje in the collections of the Oriental Institute, University of Chicago.
Kienast Altass. B. Kienast, Das Altassyrische Kaufvertragsrecht. Kaufvertragsrecht
Kienast B. Kienast, Die altassyrischen Texte des Orientalischen Seminars der Universität. ATHE Heidelberg und der Sammlung Erlenmeyer.
Kienast B. Kienast, Die altbabylonischen Briefe und Urkunden ans Kissura.
King Chron. L.W. King, Chronicles Concerning Early Babylonian Kings . . .
King Early L.W. King, A History of Sumer and Akkad: An Ac count of the Early. History Races of Babylonia . . .
King History L.W. King, A History of Babylon.
King, Hittite L.W. King, Hittite Cuneiform Texts in the Cunei form Character Texts in the British Museum.
Kinnier Wilson J.V. Kinnier Wilson, The Nimrud Wine Lists (= CTN 1). Wine Lists
Kish Tablets excavated at Kish, in the collections of the Ashmolean Museum Oxford.
Klauber E. Klauber, Assyrisches Beautentum nach Briefen aus der Beamtentum Sargonidenzeit (= LSS 5/3).
KIF Kleinasiatische Forschungen.
Knudtzon J.A. Knudtzon, Assyrischen Gebete an den Sonnengott . . . Gebete

Köcher BAM F. Köcher, Die babylonisch-assyrische Medizin in Texten und Untersuchungen.

Köcher F. Köcher, Keilschrifttexte zur assyrisch-babylonischen. Pflanzen- Drogen und Pflanzenkunde (= VIO 28). kunde.

Kohler u. J. Kohler und F.E. Peiser, Aus dem babylonischen Rechtsleben.

Konst. Tablets excavated ar Assur, in the collections of the Ar chaeological Museum of Istambul.

Koschaker P. Koschaker, Babylonisch-Assyriologisches Bürgsschaftsrecht.

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Koschaker P. Koschaker, Neue keilschiftliche Rechtsurkunden aus der NRUA El-Amarna-Zeit (= ASAW 39/5).

Kramer AV Kramer Anniversary Volume (= AOAT 25).

Kramer S.N. Kramer, Lamentation over the Destruction of Ur (= AS 12). Lamentation

Kramer S.N. Kramer, Sumerian Literary Texts from Nippur (= AASOR 23).

Kramer Two S.N. Kramer, Two Elegies on a Puschkin Museum Tablet. Elegies

Kraus AbB 1 F.R. Kraus, Briefe aus dem British Museum.

Kraus AV *Zikir Šumim*: Assyriological Studies Presented to F.R,

Kraus Edikt F.R. Kraus, Ein Edikt des Königs ..... von Babylon (= Studia et documenta ad iura orientis antiqui pertinentia 5).

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Kraus Vieh- F.R. Kraus, Staatliche Viehaltung im altbabylonischen Land Larsa. haltung

Krecher J. Krecher, Sumerische Kultlyric.

Kultlyric

KT Blanckertz J. Lewy, Die Kültepetexte der Sammlung Blanckertz . . KT Hahn J. Lewy, Die Kültepetexte der Sammlung . . . Hahn . . .

KTS J. Lewy, Die altassyrischen Texte vom Kültepe bei Kaisarije.

KUB Keilschrifturkunden aus Boghazköi.

Küchler Beitr. F. Küchler, Beiträge zur Kenntnis der assyrisch-babylonischen medizin . . .

Kühne C. Kühne, Die Chronologie der internationalen Korrespondenz von Chronologie El-Amarna (= AOAT 17).
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Labat Suse R. Labat, Texte littéraires de Suse (= MDP 57).
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Lacheman AV Studies on the Civilization and Culture of Nuzi and the Hurrians in Honor of Ernest R. Lachman (= SCCNH1).
Laesse Bit J. Laesse, Studies on the Assyrian Ritual Bît rimki.
Lajard Culte J.B.F. Lajard, Recherches sur le culte . . . de Vénus. de Vénus
Lambert BWL W.G. Lambert, Babylonian Wisdom Literature.
Lambert Love W.G. Lambert, The Problem of Love Lyrics, in Goedicke and Roberts, eds.,
Lambert W.G. Lambert, Marduk's Address to the Demons (= AfO 17 310 ff.).
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Landsberger- B. Landsberger and T. Jacobsen, Georgica (in MS.).
Lang. Language.
Langdon BL S. Langdon, Babylonian Liturgies.
Langdon S. Langdon, The Babylonian Epic of Creation.
Langdon S. Langdon, Babylonian Menologies . . .
Langdon SBP S. Landon, Sumerian and Babylonian Psalms.
Langdon Tammuz S. Langdon, Tammuz and Ishtar.

Lanu Lexical series alam =.....
Lanz Harrânu H. Lanz, Die neubabylonischen .....-Geschäftsunternehmen.
Laroche E. Laroche, Glossaire de la langue hourrite
Glossaire Hourrite (= RHA 34-35).
Lautner J.G. Lautner, Altbabylonische Personenmiete und Personen- Erntearbeiterverträge (= Studia et documenta ad iura miete orientis antiqui pertinentia 1).
Layard A.H. Layard, Inscriptions in the Cuneiform Character . . .
Layard A.H. Layard, Discoveries among the Ruins of Niniveh Discoveries and Babylon.
LB Tablet numbers in the Liagre Böhl Collection, Leiden
LBAT Late Babylonian Astronomical and Related Texts, copied by T.G. Pinches and J.N. Strassmaier, prepared for publication by A.J. Sachs, with the cooperation of J. Schaumberger.
Leander P.A. Leander, Über die sumerischen Lehnwörter im Assyrischen.
Le Gac Asn. Y. Le Gac, Les inscriptions d'Assur-nasir-aplu III.
Legrain Catal. L. Legrain, Catalogue des cylindres orientaux de la collection Louis Cugnin.
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Lehmann- F.F.C. Lehmann-Haupt, ed., Corpus inscriptionum chaldicarum.
Leichty Izbu E. Leichty, The Omen Series *Šumma Izbu* (= TCS 4).
Lenormant F. Lenormant, Choix de textes cunéiformes inédits ou Choix incomplètement publiés jusqu'à ce jour.
Levine Stelae L.D. Levine, Two Neo-Assyrian Stelae from Iran.
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Lie Sar. A.G. Lie, The Inscription of Sargon II.
LIH L. W. King, The Letters and Inscriptions of Hammurabi.
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Limet H. Limet, Etude de documents de la période d'Agadé appartenant
Limet Métal H. Limet, Le travail du métal au pays de Sumer au temps de la IIIe dynastie d'Ur.
Limet Sceaux H. Limet, Les légendes des sceaux cassites..
Limet Textes H. Limet, Textes sumériens de la IIIe dynastie d'Ur Sumériens (= Documents du Proche-Orient Ancien des Musées Royaux d'Art et d'Histoire, Epigraphie 1)

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LKA E. Ebeling, Literarische Keilschrifttexte aus Assur.
LKU A. Falkenstein, Literarische Keilschrifttexte aus Uruk.
Loretz O. Loretz, Texte aus Chagar Bazar und Tell Brak Chagar (= AOAT 3). Bazar
Loretz -Mayer O. Loretz and W.R. Mayer, Šu-ila Gebete (= AOAT 34). Šu-ila
Löw Flora I. Löw, Die Flora der Juden.
LSS Leipziger semitische Studien.
LTBA Die lexikalischen Tafelserien der Babylonier und Assyrer in den Berliner Museen.
Lu Lexical series lú = *ša,* pub. Civil, MSL 12 87-147
Lugale Epic Lugale u melambi nergal, cited from MS. of A. Falkenstein (line nos. in parentheses according to van Dijk Lugale).
Lyon Sar. D.G. Lyon, Keilschrifttexte Sargon's . . .
MAD Materials for the Assyrian Dictionary.
MAH Tablets in the collections of the Musée d'Art et d'Histoire, Geneva
Malku Synonym list *malku* = *šarru* (Malku I pub. A.D. Kilmer, JAOS 83 421 ff.);
Malku II pub. Von Soden, ZA 43 235 ff.).
MAOG Mitteilungen der altorientalischen Gesellschaft.
Maqlu G. Meier, *Maqlû* (AfO Beiheft 2).
MARI Mari, Annales de Recherches Interdisciplinaires.
Matouš Festschrift Lubor Matouš.
Matouš KK L. Matouš and M. Matoušová-Rajmová, Kappadokische Keilschrifttafeln mit Siegeln aus den Sammlungen der Karluniversität in Prag.
Matouš L. Matouš, Inscriptions cunéiformes du Kultépé, Vol. 2 (= ICK 2).
Mayer Gebets- W.R. Mayer, Untersuschungen zur Formenschprache der babylonischen beschwörun- "Gebetsbeschwörungen" (= Studia Pohl: Series Maior 5).
MBGT Middle Babylonian Grammatical Texts, pub. Civil and Kennedy, MSL SS 1 72-91.
McEwan LB G.J.P. McEwan, The Late Babylonian Tablets in the Royal Ontario Museum.
Tablets (= Royal Ontario Museum Cuneiform Texts 2).
MCS Manchester Cuneiform Studies.

MCT O. Neugebauer and A. Sachs, Mathematical Cuneiform Texts (= AOS 29).
MDOG Mitteilungen der Deutschen Orientgesellschaft.
MDP Mémoires de la Délégation en Perse.
MEE Materiali Epigrafici di Ebla.
Meek AV The Seed of Wisdom: Essays in Honour of T.J. Meek.
Meissner BAP B. Meissner, Beiträge zum altbabylonischen Privatecht.
Meissner BAW B. Meissner, Beiträge zum assyrischen Wörterbuch (= AS 1 and 4).
Meissner BuA B. Meissner, Babylonien und Assyrien.
Meissner Supp. B. Meissner, Supplement zu den assyrischen Wörterbüchern.
Meissner- Rost B. Meissner and P. Rost, Die Bauinschriften Sanheribs. Senn.
Mél. Dussaud Mélanges syriens offerts à M. René Dussaud.
Mélanges Miscellanea Babylonica: Mélanges offerts à Maurice Birot.
Mélanges Mélanges bibliques et orientaux en l'honneur de M. Henri Cazelles Cazelles (= AOAT 212).
Mélanges Florilegium Anatolicum: Mélanges offerts à Emmanuel Laroche.
Meloni Saggi Gerardo Meloni, Saggi di filologia semitica.
Mendelsohn I. Mendelsohn, Slavery in the Ancient Near East. Slavery
Menzel B. Menzel, Assyrische Tempel (= Studia Pohl: Serie Maior 10).
Met. Museum tablets in the collections of the Metropolitan Museum of Art, N.Y.
MIO Mitteilungen des Instituts für Orientforschung.
MJ Museum Journal.
MKT O Neugebauer, Mathematische Keilschrifttexte.
MLC Tablets in the collections of the J. Pierpont Morgan Li brary.
MM Tablets in the collections of the Montserrat Museum.
Moldenke A.B. Moldenke, Babylonian Contract Tablets in the Metro politan Museum of Art.
Moore E.W. Moore, Neo-Babylonian Documents in the Michigan University of Michigan Collection.
Moran EA W.L. Moran, Les lettres d'El-Amarna.
Moran Temple W.L. Moran, Sumero-Akkadian Temple Lists (in MS.).
MRS Mission de Ras Shamra.

MSL Materialen zum sumerischen lexikon: Materials for the Sumerian Lexicon.
MSL SS Materials for the Sumerian Lexicon Supplementary Series.
MSP J.J.M. de Morgan, Mission scientifique en Perse.
Mullo Weir C.J. Mullo Weir, A Lexicon of Accadian Prayers . . .
MVAG Mitteilungen der Voderasiatisch-Aegyptischen Gesellschaft.
MVN Materiali per il vocabolario neosumerico.
N Tablets in the collections of the University Museum of the University of Pennsylvania, Philadelphia.
Nabnitu Lexical series SIG7+ALAM = ..., pub. Finkel, MSL 16.
NABU Nouvelles Assyriologiques Brèves et Utilitaires
NBC Tablets in the Babylonian Collection, Yale University Li brary.
NBGT Neobabylonian Grammatical Texts, pub. Hallock and Landsberger, MSL 4 129-178.
Nbk. J.N. Strassmaier, Inschriften von Nabuchodonosor.
Nbn. J.N. Strassmaier, Inschriften von Nabonidus.
NCBT Tablets in the collections of Yale University.
Nemet- Nejat K.R. Nemet-Nejat, Late Babylonian Field Plans in the LB Field British Museum (= Studia Pohl: Series Maior 11).
Neugebauer O. Neugebauer, Astronomical Cuneiform Texts. ACT
Ni Tablets excavated at Nippur, in the collections of the Ar chaeological Museum of Istanbul.
Nies UDT J.B. Nies, Ur Dynasty Tablets.
Nigga Lexical series nigga = ..., pub. Civil, MSL 13 91-124.
Nikolski M.V. Nikolski, Dokumenty khoziaistvennoi otchetnosti . . .
Nötscher F. Nötscher, Ellil in Sumer und Akkad. Ellil
NPN I.J. Gelb, P.M. Purves, and A.A. MacRae, Nuzi Personal Names (= OIP 57)
NT field numbers of tablets excavated at Nippur by the Oriental Institute and other institutions.
Oberhuber K. Oberhuber, Sumerische und akkadische Keilschriftdenkmäler Florenz des Archäologischen Mueums zu Florenz.
Oberhuber K. Oberhuber, Innsbrucker Keilschrifttexte. IKT
OB Lu Old Babylonian Version of Lu, pub. Civil, MSL 12 151-219.

OBGT Old Babylonian Grammatical Texts, pub. Hallock and Landsberger, MSL 4 47-128

OBTTell S. Dalley, C.B.F. Walker, J.D. Hawkins, Old Babylonian Texts from Rimah Tell Rimah.

OECT Oxford Editions of Cuneiform Texts.

OIC Oriental Institute Publications.

OLA Orientalia Lovaniensia Analecta.

OLP Orientalia Lovaniensa Periodica.

OLZ Orientalistische Literaturzeitung.

Oppenehim L.F. Hartman and A.L. Oppenheim, On Beer and Brew ing Techniques Beer in Ancient Mesopotamia . . . (= JAOS Supp. 10).

Oppenheim A.L. Oppenheim, Glass and Glassmaking in Ancient Mesopotamia.

Oppenheim L. Oppenheim, Untersuchungen zum babylonischen Mietrecht Mietrechts (= WZKM Beiheft 2).

Oppert-Ménant J. Oppert et J. Ménant, Documents juridiques de l'Assyrie.

Or. Orientalia.

Oriental Laws Essays on Oriental Laws of Succession (= Studia et documenta at of Succession iura orientis antiqui pertinentia 9).

OT Old Testament.

Otten AV Festschrift Heirich Otten.

Owen Lewis D. Owen, The John Frederick Lewis Collection (= MVN 3).

Owen Loan D. Owen, The Loan Documents from Nuzi (Ph.D. diss., Documents Brandeis Univ. 1969).

Owen NATN D.I. Owen, Neo-Sumerian Archival Texts Primarily from Nippur in the University Museum, the Oriental Insti tute, and the Iraq Museum.

Pallis Akîtu S.A. Pallis, The Babylonian Akîtu Festival

PAPS Proceedings of the American Philosophical Society.

Parpola, LAS Letters from Assyrian Scholars (= AOAT 5).

Parrot A. Parrot, Documents et Monuments (= Mission archéologique de Mari II, Documents Le palais, tome 3).

PBS Publications of the Babylonian Section, University Mu seum, University of Pennsylvania.

PEF Quarterly Statement of the Palestine Exploration Fund.

Peiser F.E. Peiser, Urkunden aus der Zeir der 3. Babylonischen Dynastie. Urkunden

Peiser F.E. Peiser, Babylonische Verträge des Berliner Museums . . .

PEQ Palestine Exploration Quarterly.
Verträge
Perry Sin E.G. Perry, Hymnen und Gebete an Sin (= LSS 2/4).
Petschow MB H. Petschow, Mittelbabylonische Rechts- und Wirtschaftsurkunden Rechts-der Hilprecht-Sammlung Jena
Petschow H. Petschow, Neubabylonisches Pfandrecht (= ASAW Phil. -Hist. Kl. 48/1)
Pettinato Un- G. Pettinato, Untersuchungen zur neusumerischen Landwirtschaft.
Photo. Ass. Field photographs of tablets excavated at Assur.
Photo. Konst. Field photographs of tablets excavated at Assur.
Piepkorn Asb. A.C. Piepkorn, Historical Prism Inscriptions of Ashurbanipal (= AS 5)
Pinches T.G. Pinches, The Amherst Tablets . . .
Pinches T.G. Pinches, The Babylonian Tablets in the Berens Collec tion.
Pinches Peek T.G. Pinches, Inscribed Babylonian Tablets in the possession of Sir Henry Peek.
Postgate NA J.N. Postgate, Fifty Neo-Assyrian Legal Documents.
Postgate J.N. Postgate, The Governor's Palace Archive (= CTN 2).
Postgate J.N. Postgate, Neo-Assyrian Royal Grants and Decrees Royal Grants (= Studia Pohl: Series Maior 1).
Postgate J.N. Postgate, Taxation and Conscription in the Assyrian Empire Taxation (= Studia Pohl: Series Maior 3).
Pouvoirs A. Finet, ed., Les pouvoirs locaux en Mésopotamie et dans les Locaux régions adjacentes. Colloque organisé par l'Institut des Hautes Etudes de Belgique 28 et 29 janvier 1980.
Practical Lexical text, pub. B. Landsberger and
Vocabulary O. Gurney, AfO 18 328 ff.
Assur
Pritchard J.B. Pritchard, ed., Ancient Near Eastern Texts Relating to the Old Testament, ANET 2*nd and 3rd ed.*
Proto- Diri See Diri.
Proto-Ea See Ea; pub. Landsberger, MSL 2 35-94, and Civil, MSL 14 87-144
Proto-Izi Lexical series, pub. Civil, MSL 13 7-59.
Proto-Kagal Lexical series, pub. Civil, MSL 13 63-88.
Proto-Lu Lexical series, pub. Civil, MSL 12 25-84.
PRSM Proceedings of the Royal Society of Medicine.
PRT E. Klauber, Politisch-religiöse Texte aus der Sargonidenzeit.
PSBA Proceedings of the Society of Biblical Archaeology.
R H.C. Rawlinson, The Cuneiform Inscriptions of Western Asia

RA	Revue d'assyriologie et d'archéologie orientale.
RAcc.	F.Thureau-Dangin, Rituels Accadiens.
Rainey	EA A. Rainey, El-Amarna Tablets 359-379 (= AOAT 8).
Ranke	PN H. Ranke, Early Babylonian Personal Names.
RB	Revue biblique.
REC	F. Thureau-Dangin, Recherches sur l'origine de l'écriture cunéiforme
Recip.	Ea Lexical series "Reciprocal Ea," pub. Civil, MSL 14 521-532.
Reg	Revue d'égyptologie
Reiner	Lipšur E. Reiner, *Lipšur*-Litanies (= JNES 15 129 ff.). Litanies
Reisner	Telloh G.A. Reisner, Tempelurkunden aus Telloh Rencontre Compte rendu de la seconde (troisième) rencontre Assyriologique Assyriologique Internationale.
Rép.	Géog. Répertoire géographique des textes cunéiformes.
RÉS	Revue des études sémitiques.
Reschid	F. Reschid, Archiv des ..... und andere Darlehensurkunden Archiv des aus der altbabylonischen Zeit.
RHA	Revue hittite et asianique.
RHR	Revue de l'histoire des religions.
RIDA	Revue internationale du droit de l'antiquité.
Ries	Boden- G. Ries, Die neubabylonischen Bodenpachtformulare.
Riftin	A.P. Riftin, Staro-Vavilonskie iuridicheskie i administrativnye dokumenty v sobraniiakh SSSR.
RIM	Royal Inscriptions of Mesopotamia.
RIM	Annual Review Royal Inscriptions of Mesopotamia Annual
RLA	Reallexikon der Assyriologie.
RLV	Reallexikon der Vorgeschichte.
Rm.	Tablets in the collections of the British Museum.
ROM	Tablets in the collections of the Royal Ontario Museum, Toronto.
Römer	W.H.Ph. Römer, Frauenbriefe über religion, Politik und frauenbriefe Privatleben in Mari (= AOAT 12).
Römer	W.H.Ph. Römer, Sumerische 'Königshymnen' der Isin-Zeit. Königshymnen
Rost	P. Rost, Die Keischrifttexte Tiglat-Pilesers III . . . Tigl. III
Roth	Marriage M.T. Roth, Babylonian Marriage Agreements, 7th-3rd Centuries BC Agreements (= AOAT 222).

RS Field numbers of tablets excavated as Ras Shamra.

RSO Rivista degli studi orientali.
RT Recueil de travaux relatifs à la philologie et à l'archéologie égyptienne et assyriennes.
RTC F. Thureau-Dangin, Recueil de tablettes chaldénnes.
Sa Lexical series Syllabary A, pub. Landsberger and Hallock, MSL 3 3-45.
Sa Voc. Lexical series Syllabary A Vocabulary, pub. Landsberger and Hallock MSL 3 51-87.
SAA State Archive of Assyria.
SAA Bulletin State Archive of Assyria Bulletin.
Sachs- Hunger A.J. Sachs and H. Hunger, Astronomical Diaries and Related Diaries Texts from Babylonia.
Sag Lexical series, pub. Civil, MSL SS 1 3-38.
SAI B. Meissner, Seltene assyrische Ideogramme
SAKI F. Thureau-Dangin, Die Sumerischen und akkadischen Königsinschriften (= VAB 1).
Salonen A. Salonen, Agricultura mesopotamica (= AASF 149). Agricultura
Salonen Festschrift Studia Orientalia Armas I. Salonen (= StOr 46).
Salonen A. Salonen, Die Fischerei im alten Mesopotamien (= AASF 166). Fischerei
Salonen A. Salonen, Die Fubekleidung der alten Mesopotamier (= AASF 157). Fubekleidung
Salonen A. Salonen, Die Haugeräte der alten Mesopotamier (= AASF 139 and 144).
Salonen A. Salonen, Hippologica Accadica (= AASF100).
Salonen Jagd A. Salonen, Jagd und Jagdtiere im alten Mesopotamien (= AASF 196).
Salonen A. Salonen, Die Landfahrzeuge des alten Mesopotamien (= AASF 72).
Salonen Möbel A. Salonen, Die Möbel de alten Mesopotamien (= AASF 127).
Salonen Türen A. Salonen, Die Türen des alten Mesopotamien (= AASF 124).
Salonen A. Salonen, Die Wasserfahrzeuge in Babylonien (= StOr 8). Wasserfahrzeuge
Salonen A. Salonen, Die Ziegeleien im alten Mesopotamien (= AASF 171).
E. Salonen, Die Gruss- und Höflichkeitsformeln in Grussformeln babylonisch-assyrischen Briefen (= StOr 38).
E. Salonen E. Salonen, Die Waffen der alten Mesopotamier (= StOr 33).

San Nicolò	M. San Nicolò, Beiträge zu einer Prosopographie neubabylonischer Prosopo graphie Beamten der Zivil- und Tempelverwaltung (= SBAW 1941 2/2).
San Nicolò-	M. San Nicolò and A. Ungnad, Neubabylonische
Rechts- und Ungnad NRV	Verwaltungsurkunden.
Saporettinb	C. Saporetti, Onomastica Medio-Assira (= Studia Pohl 6)
SAWW	Sitzungsberichte der Akademie der Wissenschaften, Wien
Sb	Lexical seriesSyllabary B, pub. Landsberger and Hallock, MSL 3 96-128 and 132-153.
SBAW	Sitzungsberichte der Bayerischen Akademie der Wissenschaften.
SBH	G.A. Reisner, Sumerisch-babylonische Hymnen nach Thontafeln griechischer Zeit.
SCCNH	Studies on the Civilization and Culture of Nuzi and the Hurrians.
Schiel Sippar	V. Schiel, Une saison de fouilles à Sippar.
Schiel Tn.	II V. Schiel, Annales de Tukulti Ninip II, roi d'Assyrie 889-884.
Schneider	N. Schneider, Die Götternamen von Ur III (= AnOr 19). Götternamen
Schneider	N. Schneider, Die Zeitbestimmungen der Wirtschaftsurkunden von Zeitbestim- Ur III (= AnOr 13).
Schollmeyer	A. Schollmeyer, Sumerish-babylonische Hymnen un Gebete an Šamaš.
Schramm	W. Schramm, Einleitung in die assyrischen Königsinschriften.
Sellin	E. Sellin, Tell Taannek . . .
SEM	E. Chiera, Sumerian Epics and Myths (= OIP 15).
Sem.	Semitica.
Seux	M.-J. Seux, Epithètes royales akkadiennes et sumériennes.
Schaffer	A. Schaffer, Sumerian Sources of Tablet XII of the Epic
Sumerian of Gilgameš (Ph.D. diss., Univ. of Pennsylvania 1963).	
SHAW	Sitzungsberichte der Heidelberger Akademie der Wissenschaften
Shileiko	V.K. Shileiko, Dokumenty iz Giul-tepe. Dokumenty
Si	Field numbers of tablets excavated at Sippar

Silben-	Lexical series. Vokabular
Sjöberg	... Sjöberg, Der Mondgott Nanna-Suen in der sumerischen Mondgott Überlieferung, I. Teil: Texte.
Sjöberg	.., Sjöberg and E. Bergmann, The Collection of the Sumerian Temple Temple Hymns (= TCS 3).
ŠL	A. Deimel, Šumerisches Lexikon.
SLB	Studia et tabulas cuneiformes collectas a F.M.Th. de Liagre Böhl pertinentia.
SLT E.	Chiera, Sumerian Lexical Texts (= OIP 11).
Sm.	Tablets in the collections of the British Museum.
Smith	College Tablets in the collections of Smith College.
S.A.	Smith S.A. Smith, Miscellaneous Assyrian Texts of the British Museum.
Smith	Idrimi S. Smith, The Statue of Idri-mi.
Smith	Senn. S. Smith, The First Campaign of Sennacherib . . SMN Tablets excavated at Nuzi, in the Semitic Mu seum, Harvard University, Cambridge.
SÖAW	Sitzungsberichte der Österreichischen Akademie der Wissenschaften. von Soden W. von Soden, Grundriss der akkadischen Grammatik GAG (= AnOr 33/47).
Syllabar	von Soden W. von Soden, Das akkadische Syllabar (= AnOr 27; 2nd ed. = AnOr 42).
Sollberger	E. Sollberger, Corpus des inscriptions “royales” présargoniques de Lagaš.
Sollberger	E. Sollberger, Business and Administrative Corre spondence Correspon- under the Kings of Ur (= TCS 1).
Sollberger	and E. Sollberger and J.-R. Kupper, Inscriptions royales Kupper In- sumériennes et akkadiennes.
Sommer	F. Sommer, Die .....-Urkunder.
Sommer-	F. Sommer and A. Falkenstein, Die Hethitisch- akkadische Falkenstein Bilingue des ..... I. Bil.
Sp.	Tablets in the collections of the British Museum.
SPAW	Sitzungsberichte der Preu..ischen Akademie der Wissenschaften.
Speleers	L. Speleers, Recueil des inscriptions de l’Asie antérieure des Musées Recueil Royaux du Cinquantenaire à Bruxelles.
SRT	E. Chiera, Sumerian Religious Texts.
SSB	F.X. Kugler, Sternkunde und Sterndienst in Babel.

SSB	Erg. J. Schaumberger, Sternkunde und Sterndienst in Babel, Ergänzungen . . .
Stamm	J.J. Stamm, Die akkadische Namengebung (= MVAG 44). Namengebung
Starr	Barû I. Starr, The .....rituals (Ph.D. diss., Yale Univ. 1974).
Starr	Diviner I. Starr, The Rituals of the Diviner (= BiMes 12).
Starr	Nuzi R.F.S. Starr, Nuzi, Report on the Excavations at Yorgan Tepa near Kirkuk, Iraq.
Statue de	A. Abou-Assaf, P. Bordreuil, and A.R. Millard, La statue de Tell Fekherye
StBoT	Studien zu den .....-Texten.
STC	L.W. King, The Seven Tablets of Creation.
Stephens	PNC F.J. Stephens, Personal Names from Cuneiform Inscriptions of Cappadocia.
Stier	AV Antike und Universalgeschichte. Festschrift Hans Erich Stier.
Stol OB	M. Stol, Studies in Old Babylonian History. History
Stol	On Trees M. Stol, On Trees, Mountains and Mill stones in the Ancient Near East (= MEOL 21).
Stone	Nippur E. Stone, Nippur Neighborhoods.
StOr	Studia Orientalia (Helsinki).
Strassmaier	J.N. Strassmaier, Alphabetisches Verzeichnis der assyrischen und AV akkadischen Wörter . . .
Strassmaier	J.N. Strassmaier, Die babylonischen Inschriften im Museum Liverpool zu Liverpool, Actes du 6e Congrès International des Orientalistes, II, Section Sémitique (1) (1885), plates after p. 624.
Strassmaier	J.N. Strassmaier, Texte altbabylonischer Verträge aus Warka, Warka Verhandlungen des fünften Internationalen Orientalisten-Congresses (1881), Beilage.
Streck	Asb. M. Streck, Assurbanipal . . . (= VAB 7).
STT	O. Gurney, J.J. Finkelstein, and P. Hulin, The Sultantepe Tablets.
Studi	Rinaldi Studi sull'Oriente e la Bibbia offerti al P. Giovanni Rinaldi . . .
Studia	Volterra Studi in onore di Edoardo Volterra.
Studia	Mariana (= Documenta et monumenta orienti antiqui 4).

Studia	Orien- Studia orientalia Ioanni Pedersen dicatatalia PedersenStudien Falkenstein Heidelberg Studien zum alten Orient, Adam Falkenstein zum 17. September 1966.
Studies	Albright H. Goedicke, ed., Near Eastern Studies in honor of William Foxwell Albright.
Studies	Beek Travels in the World of the Old Testament:
Studies	Presented to Prof. M.A. Beek . . .
Studies	Diakonoff Societies and Languages of the Ancient Near East Studies in Honour of I.M. Diakinoff.
Studies	Jones Studies in Honor of Tom B. Jones (= AOAT 203).
Studies	Landsberger Studies in Honor of Benno Landsberger on his Seventy-fifth Birthday (= AS 16).
Studies	Oppenheim Studies Presented to A. Leo Oppenheim.
Studies	Robinson Studies in Old Testament Prophecy Pre sented to T.H. Robinson.
STVC E.	Chiera, Sumerian Texts of Varied Contents (= OIP 16).
Sultantepe	Field numbers of tablets excavated at Sultantepe.
Sumerological	Sumerological Studies in Honor of Thorkild Jacobsen (= AS 20)
Studies	Jacobsen Ankara Üniversitesi Dil ve ..... Falkütesi Sumeroloji Sumeroloji ara..tirmalari, 1940-41 Ara..tirmalari
Šurpu	E. Reiner, Šurpu (= AfO Beiheft 11).
Symb.	Symbolae P. Koschaker dedicatae. Koschaker (= Studia et documenta ad iura orientis antiqui pertinentia 2) Symbolae Böhl Symbolae Biblicae et Mesopotamicae Francisco Mario Theodoro de Liagre Böhl Dedicatae.
SZ	Zeitschrift der Savigny-Stiftung.
Szlechter	E. Szlechter, Tablettes juridiques dela 1re Dynastie de Babylone.
Szlechter	E. Szlechter, Tablettes juridiques et administratives de la IIIe Dynastie d'Ur
TJA	et de la 1re Dynastie de Babylone.
T	Tablets in the collections of the Staatliche Museen, Berl

Šurpu	E. Reiner, Šurpu (= AfO Beiheft 11).
Symb.	Symbolae P. Koschaker dedicatae. Koschaker (= Studia et documenta ad iura orientis antiqui pertinentia 2) Symbolae Böhl Symbolae Biblicae et Mesopotamicae Francisco Mario Theodoro de Liagre Böhl Dedicatae.
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Szlechter	E. Szlechter, Tablettes juridiques dela 1re Dynastie de Babylone.
Szlechter	E. Szlechter, Tablettes juridiques et administratives de la IIIe Dynastie d'Ur
TJA	et de la 1re Dynastie de Babylone.
T	Tablets in the collections of the Staatliche Museen, Berlin.
Tablet Funck	One of several tablets in private possession (men tioned as F. 1, 2, 3, Delitzsch HWB viii), cited from unpublished copies of Delitzsch; F. 2 pub. AfO 21 pl. 9-10
Tallqvist	APN K. Tallqvist, Assyrian Personal Names (= AASF 43/1).
Tallqvist	K. Tallqvist, Akkadische Götterepitheta (= StOr 7). Götterepitheta
Tallqvist	K. Tallqvist, Die assyrische Beschwörungsserie Maqlû (= ASSF 20/6). Maqlu
Tallqvist	NBN K. Tallqvist, Neubabylonisches Namenbuch . . . (= ASSF 32/2).
TCL	Textes cunéiformes du Louvre.
TCS	Texts from Cuneiform Sources.
Tell Asmar	Tablets excavated at Tell Asmar, in the collections of the Oriental Institute, University of Chicago.
Tell Halaf	J. Friedrich et al., Die Inschriften vom Tell Halaf (= AfO Beiheft 6).
Th. Tablets	in the collections of the British Museum.
Thompson	AH R.C. Thompson, The Assyrian Herbal.
Thompson	R.C. Thompson, On the Chemistry of the Ancient Assyrians.
Thompson	R.C. Thompson, A Dictionary of Assyrian Botany. DAB
Thompson	R.C. Thompson, A Dictionary of Assyrian Chemistry and Geology. DAC
Thompson	R.C. Thompson, The Prisms of Esarhaddon and of Ashurbanipal . . . Esarh.

Thompson	R.C. Thompson, The Epic of Gilgamish.
	Gilg.
Thompson	R.C. Thompson, The Reports of the Magicians and Astrologers . . .
Thureau-	F. Thureau-Dangin, M. Durand, et al., Til-Barsib.
Dangin Til Barsib.	
Tablet Funck	One of several tablets in private possession (men tioned as F. 1, 2, 3, Delitzsch
	HWB viii), cited from unpublished copies of Delitzsch; F. 2 pub. AfO 21 pl. 9-10
	Tallqvist APN K. Tallqvist, Assyrian Personal Names (= AASF 43/1).
Tallqvist	K. Tallqvist, Akkadische Götterepitheta (= StOr 7).
Götter epitheta	
Tallqvist	Maqlu K. Tallqvist, Die assyrische Beschwörungsserie Maqlû (= ASSF 20/6).
Tallqvist	NBN K. Tallqvist, Neubabylonisches Namenbuch . . . (= ASSF 32/2).
TCL	Textes cunéiformes du Louvre.
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Thompson	AH R.C. Thompson, The Assyrian Herbal.
Thompson	Chem. R.C. Thompson, On the Chemistry of the Ancient Assyrians.
Thompson	DAB R.C. Thompson, A Dictionary of Assyrian Botany.
Thompson	DAC R.C. Thompson, A Dictionary of Assyrian Chemistry and Geology.
Thompson	Esarh. R.C. Thompson, The Prisms of Esarhaddon and of Ashurbanipal . . .
Thompson	Gilg. R.C. Thompson, The Epic of Gilgamish.
Thompson	Rep. R.C. Thompson, The Reports of the Magicians and Astrologers . . .
Thureau-Dangin	F. Thureau-Dangin, M. Durand, et al., Til-Barsib.
TIM	Texts in the Iraq Museum.
TLB	Tabulae Cuneiformes a F.M.Th. de Liagre Böhl collectae.

TMB	F. Thureau-Dangin, Textes mathématiques babyloniens.
Tn.-	Epic Tukulti-Ninurta Epic, pub. AAA 20, pls. 101 ff., and Archaeologia 79 pl. 49; transliteration in Ebeling, MOAG 12/2, column num bers according to W.G. Lambert, AfO 18 38 ff.
Torczyner	H. Torczyner, Altbabylonische Tempelrechungen.
TSBA	Transactions of the Society of Biblical Archaeology.
TSTS	Toronto Semitic Texts and Studies.
TuL	E. Ebeling, Tod und Leben nach den Vorstellungen de Babylonier.
TuM	Texte und Materialen der Frau Professor Hilprecht Collection of Babylonain Antiquities im Eigentum der Universität Jena.
Turner	S.M. Katre, ed., Sir Ralph Turner. Jubilee Vol. Jubilee Volume.
UCP	University of California Publications in Semitic Phi lology.
UE	Ur Excavations.
UET	Ur Excavations, Texts.
UF	Ugarit-Forschungen.
Ugumu	Lexical series, pub. Civil, MSL 9 51-65.
Ugumu	Lexical series, pub. Civil, MSL 9 51-65.
Ugumu Bil.	Lexical series, pub. Civil, MSL 9 66-73.
UM	Tablets in the collections of the University Museum of the University of Pennsylvania, Philadelphia.
UMB	University Museum Bulletin.
Unger	Babylon E. Unger, Babylon, die heilige Stadt . . .
Unger	Bel- E. Unger, Die Stele des Bel-harran-beli-ussur. harran-beli ussur
Unger Mem.	In Memoriam Eckhard Unger. Beiträge zu Geschichte, Kultur und Vol. Religion des Alten Orients.
Unger	Relief stele E. Unger, Reliefstele Adadniraris III. Aus Sabaa und Semiramis.
Ungnad	NRV A. Ungnad, Neubabylonische Rechts- und Verwaltungsurkunden. Glossar Glossar.
Uruanna	Pharmaceutical series uruanna: *maštakal.*
UVB	Vorläufiger Bericht über die . . . Ausgrabungen in
Uruk-	Warka (Berlin 1930-).

	VAB Voderasiatische Bibliothek.
van Dijk	J. van Dijk, Sumerische Götterlieder. Götter-Lieder
van Dijk	J. van Dijk, La sagesse suméro-accadienne. La sagesse
van Dijk J.	van Dijk, LUGAL
VAS	Voderasiatische Schriftdenkmäler.
VAT	Tablets in the collections of the Staatliche Museen, Berlin.
VBoT	A. Götze, Verstreute Boghazköi-Texte.
VDI	Vestnik Drevnei Istorii.
Veenhof	Old K.R. Veenhof, Aspects of Old Assyrian Trade and Its Terminology. Assyrian Trade
VIO	Veröffenlichungen des Instituts für Orientforschung, Berlin.
Virolleaud	C. Virolleaud, Compatibilité chaldéenne (époque de la dynastie seconde d'Our). Comptabilité
Virolleaud	C. Virolleaud, La légende phénicienne de Danel.
Virolleaud	C. Virolleaud, Fragments de textes divinatoires assyriens du Musée Britannique.
Voix de	A. Finet, ed., La voix de l'opposition en Mésopotamie. Colloque organisé par l'opposition l'Institut des Hautes Etudes de Belgique 19 et 20 mars 1973.
von Voigt	- E. von Voigtlander, The Bisitun Inscription of Darius the Great: Babylonian lander Version (= Corpus Inscriptionum Iranicarum, part I, vol. II). Bisitun
VT	Vetus Testamentum.
W.	Field numbers of tablets excavated at Warka.
Waetzoldt	Text- H. Waetzoldt, Untersuchungen zur neusumerischen Textilindustrie.
Walther	A. Walther, Das altbabylonische Gerichtswesen (= LSS 6/4-6).Gerichtswesen
Ward Seals	W.H. Ward, The Seal Cylinders of Western Asia.
Warka	Field numbers of tablets excavated at Warka.
Watelin	Kish Oxford University Joint Expedition to Mesopo tamia, Excavations at Kish: III (1925-1927) by L.C.
Waterman	L. Waterman, Business Documents of the Hammurabi Period Bus. Doc. (also pub. In AJSL 29 and 30).
Weidner	E. Weidner, Handbuch der babylonischen Astronomie.

Weidner Th.	E. Weidner, Die Inschriften Tukulti-Ninurtas I. (= AfO Beiheft 12).
von Weiher	E. von Weiher, Der babylonische Gott Nergal (= AOAT 11). Nergal
von Weiher	Uruk E. von Weiher, Spätbabylonische Texte aus Uruk, 2 and 3.
Weissbach	Misc. F.H. Weissbach, Babylonische Miscellen (= WVDOG 4).
Weitmeyer	M. Weitemeyer, Some Aspects of the Hiring of Work ers in the Sippar Region at the Time of Hammurabi.
Wenger	AV Festschrift für Leopold Wenger, 2. Band, Münchener Beiträge zur Papyrusforschung und Antiken Rechtsgeschichte, 35. Heft.
Westenholz	OSP A. Westenholz, Old Sumerian and Old Akkadian Texts in Philadelphia Chiefly from Nippur.
Whiting	Tell Asmar R. Whiting, Jr., Old Babylonian Letters form Tell Asmar (= AS 22).
Wilcke	KollationenC.Wilcke, Kollationen zu den sumerischen literarischen Texten aus Nippur in der Hilprecht-Sammlung Jena (= ASAW 65/4).
Wilcke	C. Wilcke, Das Lugalbandaepos. Lugalbanda
Wilhelm	G. Wilhelm, Untersuchungen zum Hurro-Akkadischen von Nuzi Unter- (= AOAT 9). suchungen
Winkler	AOF H. Winkler, Altorientalische Forschungen.
Winkler	H. Winkler, Sammlung von Keilschrifttexten. Sammlung
Winkler	Sar. H. Winkler, Die Keilschrifttexte Sargons . . .
Winnett	AV J. Wevers and D. Redford, eds., Studies on the Ancient Palestinian World (= TSTS 2).
Wiseman	Alalakh D.J. Wiseman, The Alalakh Tablets.
Wiseman	D.J. Wiseman, Chronicles of the Chaldean Kings . . . Chron.
Wiseman	D.J. Wiseman, The Vassal Treaties of Essarhaddon (= Iraq 20 Part 1). Treaties
WO	Die Welt des Orients.
Woolley	Carchemish, Report on the Excavations at Djerabis on behalf Carchemish of the British Museum.
WVDOG	Wissenschaftliche Veröffentlichungen der Deutschen Orient-Gesellschaft.

WZJ	Wissenschaftliche Zeitschrift der Friedrich - Schiller - Universität Jena.
WZKM	Wiener Zeitschrift für die Kunde des Morgenlandes.
YBC	Tablets in the Babylonian Collections, Yale University Library.
Ylvisaker	S.C. Ylvisaker, Zur babylonischen und assyrischen Grammatik . Grammatik (= LSS 5/6).
YOR	Yale Oriental Series, Researches.
YOS	Yale Oriental Series, Babylonian Texts.
ZA	Zeitschrift für Assyriologie.
ZAW	Zeitschrift für die alttestamentliche Wissenschaft.
ZDMG	Zeitschrift der Deutschen Morgenländischen Gesellschaft.
ZDPV	Zeitschrift des Deutschen Palästina-Vereins.
ZE	Zeitschrift für Ethnologie.
Zimmern	H. Zimmern, Akkadische Fremdwörter . . ., 2nd ed. Fremdw.
Zimmern	H. Zimmern, Ištar und Saltu, ein altakkadisches Lied Ištar und (= BSGW Phil.-hist. KL. 68/1). Saltu
Zimmern	H. Zimmern, Zum babylonischen Neujahrfest (= BSGW Phil.-hist Neujahrfest Kl. 58/3); zweiter Beitrag (= ibid. 70/5).
ZK	Zeitschrift für Keilschriftforschung.
ZS	Zeitschrift für Semitistik.

Selective musicological bibliography

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Iconographical numbering

NB, all numbers do not figure in the present volume

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2-Curtis 1982, p. 81 fig 61; Collon 1987/72;
3-Moorgat and Moorgat Correns 1978 p. 22 Abb 4; Collon 1987/3.
4-Legrain 1936/169; Collon 1987/4.
5-Moorgat Correns 1969, p. 251; Collon 1987/663.
6-Porada 190/d; Collon 1987/6.
7-Collon 1982/47; Collon 1987/664.
8-UE II taf 193 Abb 18; Galpin 1937 Pl 1; Schmidt Colinet 1981/36.
9-BM 1996-10-2,1.
10-Hansen 1971; Amiet 1703; Collon 1987/942.
11-Legrain 1936/383; Hartmann 13b; Stauder HLS 13f.; Schmidt-Colinet 1982/35a-35b;
Collon 1987/935.
12-Amiet 1972/2184; Collon 1987/938.
13-Amiet 1770.
14-Amiet 1773.
15-Amiet 1199.
16-De Gruyter K2.
17-De Gruyter K1.
18-Amiet GMA 1193; Galpin 1937/II; Woolley 1934 pl. 193:21;
Schmidt-Colinet 1980/2;
Collon 1987/669.
19-Frankfort 1954 Tab 59b; Barrelet 776.
20-La Glyptique Syrienne Archaique, p 75 fig 27.
21-Bachmann p 80 n 1.
22-Bachmann p 80 n 2.
23-Bachmann p 80 n 3.
24-Bachmann p 80 n 6.
25-Bachmann p 80 n 5.
26-Bachmann p 80 n 7.
27-Barrelet 775; Parrot 379; Schmidt-Colinet 1980/42.
28-La Glyptique Syrienne Archaique p 75 fig 28.
29-Rashid 1984/48; Lowergren, BASOR, 1998.
30-Parrot 378; Schmidt-Colinet 1980/44.
31-Rashid.
32-Rashid.
33-Rashid.
34-Pritchard 197; Frankfort 1954/11a; Schmidt-Colinet 1980/41.
35-Schmidt-Colinet 39; Pritchard 196.
36-Dumbrill 1998/36.

35-Schmidt-Colinet 39; Pritchard 196.
36-Dumbrill 1998/36.
37-Stauder HLS 15; Schmidt-Colinet 31.
38-Stauder HLS 4, 5; Schmidt-Colinet 1980/32.
39-Rashid
40-Rashid
41-Rashid
42-Parrot, Le Temple d'Ishtar fig 69; Williamson, Les Harpes sculptées de Mari, figs 5-6.
43-Rashid 1984 = RD 29?
44-Rashid
45-Rashid
46-Rashid
47-Rashid
48-Rashid
49-Rashid
50-Rashid
51-Collon 1993/666.
52-Barnett 1969 Tab 12c, 7a, b; Christian 1940 Tab 245; Galpin 1955 Tab V, 3; Hartmann
1960 Figs 48, 49; Moorgat 1949 fig 40; Orthmann 1975 fig 96; Parrot 1961 fig 369; Rimmer
1969 fig 2, 3.
53-Frankfort 1954/174b; Schmidt-Colinet 51; Catting 'Cypriot Bronzework in the Mycenian
World (Oxford 1964) pl 34-5.
54-Rashid
55-Rashid
56-Rashid
57-Calmeyer RBS 1973.
58-Rashid
59-Rimmer XII; Mitchell 1980.
60-Rashid
61-Rashid
62-Rashid
63-Rashid
64-Rashid
65-Rashid
66-Rashid
67-Rashid
68-Rashid
69-Rashid
70-Rashid

71-Rashid
72-Rashid
73-Rashid
74-Rashid
75-Rashid
76-Orthmann, 1971, pl. 639, fig. 199; Gurney 1977, pl. 7,L.
77-Herzfeld Seibert, Die Frau im Alten Orient (1973) Abb S 34; Schmidt-Colinet 1980/
23; Rashid 1984, fig 59.
78-Schmidt-Colinet 1980/80; IRAQ 22 1960 tab 27a.
79-Rashid
80-Schmidt-Colinet 1980/76; Moorgat 1949 taf. 32a.
81-Rashid
82-Rashid
83-Rashid
84-Rashid
85-Rashid
86-Rashid
87-Rashid
88-Rashid
89-Rashid
90-Rashid
91-Rashid
92-Rashid
93-Rashid
94-Rashid
95-Rashid
96-Rashid
97-Barrelet 377.
98-Barrelet 368.
99-Barrelet 375.
100-Barrelet 376.
101-Barrelet 373.
102-Barrelet 374.
103-Barrelet 371.
104-Barrelet 372.
105-Barrelet 369.
106-Barrelet 370.
107-Barrelet 367.
108-Barrelet 368.
109-Barrelet 364.
110-Barrelet 366.
111-Barrelet 362.

112-Barrellet 363.
113-Barrelet 357.
114-Barrelet 358.
115-Barrelet 355.
116-Barrelet 356.
117-Barrelet 669.
118-Barrelet 340.
119-Barrelet 810.
120-Barrelet 385.
121-Barrelet 381.
122-Barrelet 382.
123-Barrelet 385.
124-Barrelet 386.
125-Barrelet 379.
126-Barrelet 380.
127-Barrelet 353.
128-Barrelet 354.
129-Barrelet 351.
130-Barrelet 352.
131-Barrelet 349.
132-Barrelet 350.
133-Barrelet 347.
134-Barrelet 348.
135-Barrelet 345.
136-Barrelet 346.
137-Barrelet 343.
138-Barrelet 344.
139-Barrelet 341.
140-Barrelet 342.
141-Orthmann Orient 115; Schmidt-Colinet 73.
142-Rashid
143-Parrot 385; Schmidt-Colinet 72.
144-Rashid
145-Mallowan 218; Pritchard 197.
146-Calmeyer Abb 13.
147-Bachmann x.
148-Rashid
149-Rashid
150-Bachmann p 69; Schmidt-Colinet 74; Parrot 286.
151-Bachmann p 51.
152- Rashid
153-Bachmann p 70; Parrot 385.
154-Bachmann p 20.

155-Parrot 385; Bachmann x.
156-Parrot 385.
157-Rashid
158-Parrot 385.
159-Rashid
160-Parrot 385.
161-Parrot 385.
162-Parrot 385.
163-The seventh festival of Al-Mahabbah, Lattakia, p 55.
164-Rashid
165-Woolley, Karchemich II tab B, 18b. Schmidt-Colinet 75.
166-Schmidt-Colinet 71a, 71b.
167-Galpin III/4
168-Bachmann p 79 n 61.
169-Rashid
170-Rashid
171-Duchesne-Guillemin IRAQ XLV; Schmidt-Colinet 82; Parrot 390.
172-Frankfort 1954 p 198 fig 96.
173-Rashid
174-Rashid
175-Rashid
176-Seton-Lloyd 1978 p 207 fig 149.
177-Rashid
178-Schmidt-Colinet 1980/60.
179-Rashid
180-Sialk Southern Hill Vol 1
181-Sialk Southern Hill Vol 1
182-Sialk Southern Hill Vol 1
183-Sialk Southern Hill Vol 1
184-Sialk Southern Hill Vol 1
185-Barrelet 588.
186-Moorgat 1949/16; Boese 14; Schmidt-Colinet 1980/40; De Gruyter AmW.
187-Rashid
188-Parrot 389.
189-Parrot 388.
190-Rashid
191-Rashid
192-Rashid
193-Rashid
194-Rashid
195-Bachmann p 61 n 37.

196-Rashid
197-Rashid
198-Rashid
199-Rashid
200-Rashid
201-Rashid
202-Rashid
203-Rashid
204-Rashid
205-Rashid
207-Rashid
208-Rashid
209-Rashid
210-Rashid
211-Delaporte 1910/382; Collon 1987/676.
218-Collon 1982a/199; Collon 1987/672.
219-Christies' catalogue 1997.
221-Collon 1980; Collon 1987/673.
223- Dumbrill, 1998.
225-Schmidt-Colinet 1980-56.
226-Rashid
227-Schmidt-Colinet 1980/57.
228-Parrot 379.
229-
230-
231-Barrelet 591.
232-BagM 4 1969/18a;Schmidt-Colinet 1980/18a
233-Bossert 506; Schmidt-Colinet 1980/58.
234-Schmidt-Colinet 1981/61.
235-Barrelet 774.
236-Barrelet 773.
237-Barrelet 572.
239-Barrelet 244.
240-Jacquier 1900 pl viii 7.
241-Barrelet 243.
242Barrelet 242.
243-Barrelet 666.
244-Calmayer
245-Calmayer
246-Calmayer
247-Opificius 13/584; Schmidt-Colinet 1980/55; Bachmann p 75.
248-Bachmann 93? 82
249-Rashid
250-Rashid

251-Rashid
252-Galpin 1937 pl VIII n 6; Rashid Laute 14, 16; Schmidt-Colinet 1980/54.
253-Rashid
254-Rashid
255-Schmidt-Colinet 1980/17; Ziegler 1962/20.207.
256-Delaporte 1920 D 56; Limet 1971 2 18; BagM 1973/43; Schmidt-Colinet 1980/16;
Collon 1987/674.
257-Rashid
258-Rashid
259-Rashid
260-Rashid
261-Rashid
263-Rashid
264-Rashid
265-Rashid
266-Rashid
267-Rashid
268-Rashid
269-Rashid
270-Rashid
271-Rashid
272-Rashid
273-Rashid
274-Rashid
275- Collon 1980-1983, fig. 50 RlA.
276-Amiet 1972/1443; Collon 1987/667.
277-Galpin 1937/II,3; Boehmer 32/385; Schmidt-Colinet 1980/11.
278-Rashid
279-Rashid
280-Amiet 1960-1 GMA 1198.
281-Amiet GMA 1201; Bachmann p 52; Schmidt-Colinet 1980/1b.
282-Amiet GMA 1200.
283-Amiet 1764.
284-Moorgat-Correns, 1955, pls. 1, 2
285-Rashid
286-Pritchard 1969 n 322; Frankfort 1954 pl 75; Loud 1939, pl. 4; Metropolitan MA 1986,
n.9; Mazar 1990; Collon 1997, fig. 3.
287-Gjerstad pl III.
288-Amiet 1704.
289-Amiet 1194; Woolley 1934 pl 194:32; Galpin 1937 pl II n 5;

Schmidt-Colinet 1989/3;
Collon-Kilmer RlA 1983 p 578; Collon 1987/668.
290-Schmidt-Colinet 1989/6.
291-Schmidt-Colinet 1980/13.
292-Rashid
293-Fara 529; Bachmann
294-Fara 530; Bachmann 52.
295-Rashid
296-Fara 531; Schmidt-Colinet 1980/1a.
297-Fara 532.
298-Fara 225; Harriet Martin.
299-Bachmann 46.
300-Bachmann p 65 n 41; Rashid; Schmidt-Colinet 1980/12; Sumer 23 1967/II.
301-Rashid
302-Rashid in Sumer 23.
303-Rashid
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541-Lowergren, BASOR 1998.
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General index

Abdimilkutte 184
Abdulqadir 58
Abu Salik 56
Acrocratic 137, 234
Adab 81, 83
Aerophones 178
Agade 16
Aign, B. 364
Alaca Huyuk 337
Aleppo 196
Al-Farabi 105
Al-Fouadi 241
Ali, F. 347
Allative 137
Ammonites 22
Amorite 22
Amyklai 263
An 35
Anacrusic 56, 53
Antonym 137
Anu 62, 63, 78, 79, 80, 93, 94
Apotome 62, 63, 95
Apulian 364
Arabian Gulf 18
Arabic 22
Aramaic 22
Ardin 223
Arnt-Jeamart, H. 120
Ashdod 264, 268
Ashkelon 284
Ashurbanipal 285
Assur 18, 248, 278
Asymmetric 283
Aten 32
Ayia Triada 262
Babylon 265
Balag 224
Barnett, R.D. 364
Bel Marduk 57, 61, 63
Beni Hassan 266
Bimodal 101
Bismaya 198
Black, J.A. 77
Boehmer, R.M. 324
Borger, R. 77
Boviform 232
Boyer, G. 117
Brandenstein 135

Bridge 64
Brock, S.P. 18
Brown, R.L. 120
Buren, E.D. 324
Bush, F.W. 137
Byblos 284
Calabash 179
Canaanite 22
Castellino, G.R. 180, 241, 318
Caucasus 18, 132
Cembalum 285
Chaldean 35
Charles, R. 117
Chelab, M.H. 364
Choga Minsh 194
Chordophones 178
Civil 364
Clairmont, Ch. 117
Collon, D. 15, 233, 321
Colophons 23, 87, 92, 101
Consonnants 15
Contenson, H. de 117
Courtois, J.-C. 117
Crocker, R. 64, 65, 71, 120
Crwth 319
Cycladic 231, 232, 209, 255, 266
Cyprus 268
Czerny 120
Dalley, S. 55
Dastingue, J. 117
Demotic 23
Dentals 15
Determinatives 23, 179, 202
Diakonoff, I.M. 137
Diatonic 39, 54, 218
Diatonism 40, 283
Dichord 120
Directive 137
Diyala 327
Doric 41
Dualism 18
Dublamah 28
Duchesne-Guillemin, M. 31, 32, 38, 39, 93, 118, 197, 241
Dumuzi 79, 187
Dynamic 53, 67
Ea 35, 36, 43, 52, 78, 92, 93, 136, 322, 324
Ebeling, E. 77
Edomites 22
Ekussi 135
Elamite 191, 199, 208, 218

Ellis, A.J. 21
Enki 188, 324
Enlil 35
Enmessara 92
Enneachord 45, 103
Enneatonic 36, 53, 54, 55, 56, 101
Enneatonism 16, 67, 104
Entelechy 18
Eshnuna 199, 200, 201, 327
Extrapolation 41, 65, 73
Falkenstein 28, 80, 241
Fara 243, 244, 251
Farber, W. 79
Farmer, G.H. 35
Ferenbach, D. 117
Finkel, I.L. 83, 89, 97
Fret 94
Fretted 61
Friction bow 310
Galpin, F.W. 25, 197, 347
Genbri 322, 373
Genitive 64
Gernot, W. 145
Girgashites 22
Girsu 370, 372
Glossenkeil 93
God numbers 35, 62, 63, 94, 311
Goetze, 182
Gordon 319
Gudea 225, 318
Gurney, O.R. 27, 47, 48, 53, 63, 64, 99, 142, 182, 183 184, 241, 311
Hammam 222
Hanis 92
Hapax legomenon 87
Hattic 241
Hebrew 22
Held, M. 77
Helmholtz, H. von 19
Hemistich 93
Hempel 347, 363
Heptachord 45, 102, 103
Heptachordal 39, 45, 101
Heptagonal 74
Heptahedron 102
Heptatonic 39
Heptatonism 16, 104
Heraklion 272
Herz, H.R. 21
Hieratic 23
Hieroglyphs 23

Hittite 22, 270
Homophony 15
Hornbostel, E.M. von 178
Huet, G. 319
Hungarian 285
Hunger, H. 182
Hurassan 57
Hurrian 75, 87, 117
Hurrian hymns 18
Idalion 269
Ideographic 18
Idiophones 178
Igigi 79
Inandik 33, 184, 186, 187, 257, 258, 259
Inannna 252
Incipit 77, 78, 80, 84
Interferential beats 55
Ischali 249, 327
Isimud 324
Isin Larsa 204, 205, 206, 207, 208
Istar 57, 61, 63, 79, 81, 184, 349
Jaussen 142
Jebusites 22
Jemdet Nasr 178
Kadmonites 22
Kalamion 263
Kalebites 22
Kaloiziki 268
Kamid el-Loz 264
Karatepe 269, 272
Karchemich 339, 340, 351, 373
Karnak 32
Kassite 37, 337
Kenites 22
Kenizzites 22
Khacuikjan 137
Khafage 443, 250
Kilmer, A. 28, 37, 71, 82, 89, 120, 181, 182, 234, 316
Kimran Shah 210
Kish 279, 331, 330, 331, 386
Knafajeh 189
Krispijn, Th. J.H. 48
Kultepe 260, 261
Kundi 184
Kusche, A. 117
Laaud 319
Labat, R. 35
Labials 15
Lamb pelt 327
Lambert 89

Land 57
Landsberger, B. 25, 28, 316
Langdon, S.H. 110, 316
Laroche, E. 117, 135, 137
Larsa 335, 352, 368
Laryngeals 15
Lateral-asymmetric 34
Lattakia 277, 278, 341, 354
Laud, G. 284
Lavignac 142
Lawergren, B. 142, 183
Legrain 347
Leichty, E. 85, 89
Limet, H. 348, 77
Limma 56, 62
Lipit Istar 87
Liquids 15
Livingstone, A. 35, 77, 233, 363
Luth 319
Luwain 22
Lyriform 232
Malbran-Labat, F. 35
Manniche, L. 223
Maras 279
Mardin 261
Mari 196, 197, 334, 335
McClain, E. 312
Megiddo 221, 234, 265, 267, 283
Membranophones 178
Microtonal 320
Middle-Assyrian 16
Middle-Babylonian 16
Miles, G.C. 117
Mitchell, T.C. 202
Mithlath 56
Mixolydian 56
Monostructural 186
Myrmecophaga Jubata 243
Nabnitu 28
Nana 80
Nana 325
Nanse hymn 364
Naupolion 262
Neo-Babylonian 16, 37
Nergal 349
Niger 325
Nihawand 203
Nimrud 340, 351, 386, 184, 202, 218, 285, 365
Nippur 18, 37, 85, 244, 252, 266
Nominative 64
North Arabian 22

Nougayrol, J. 117
Old-Akkadian 16
Ols-Assyrian 16
Olyum Huyuk 253, 256
Opificius, R. 326
Oppenheim 89
Organology 68
Palaepaphos 263
Palaic 22
Palaikastro 262
Palatals 15
Pandura 319
Pentachordal 58
Pentatonic 66, 67, 248
Pentatonism 16
Perizzites 22
Persian Empire 110
Pisais 135
Plagal 75
Plato 30, 35
Plutarch 35
Porada, E. 208
Pritchard 284
Prony, Baron G. 21
Ptah 284
Pu Abi 103, 192, 222
Pythagorean 57, 61, 62
Rabab 309
Ramses III 284
Ras al-Shamra 19, 24
Rashid 235, 241, 364
Rawlinson 184
Reiner, E. 78
Rimmer 364
Rollig, W. 35, 78
Romer 234
Rota 319
Rotte 319
Rud 319
Rudri 319
Sachs, C. 25, 178
Sakkan 349
Salonen 225
Samas 57, 62, 63, 349
Sammu 142, 181, 182
Sanduarri 184
Schaeffer, C. 117
Schiel 363
Schneider, M. 179
Selekahiye 226

Seleucid 211, 212, 213, 214, 215, 216, 216, 223
279, 281, 341, 342, 343, 344, 351, 352
353, 355, 356, 357, 358
Semites 117
Semivowels 15
Shaffer, A. 71, 74
Sharudh 319
Shofar 347
Sibilants 15
Sidonians 22
Sin 94, 349
Sinai 18
Sinai 35
Sippar 18, 89
Sistrum 34
Sizu 184
Smith 120
Soden, W. von 77
Sollberger 89, 225
Sous 309
Speisser, E.A. 137
Spycket, A. 182
Statlender, R. 25
Status constructus 64
Sulgi hymn 74
Sullat 92
Susa 68, 226, 246, 332, 333, 337
Syllabism 17
Symmetrical 101, 283
Symmetry 33
Syria 241
Syriac 22, 24
Syrian 269
Tambura 319
Tarsus 261
Taurus 18
Tell Achana 209
Tell Agrab 190
Tell Asmar 199, 200, 201, 327, 328
Tell Batash 264
Tell ed-Der 280
Tell Halaf 252
Tell Keisan 274
Tell Suleimeh 366
TellMamabaqat 336
Tello 247, 330, 370, 371, 372
Tessub 135
Tetrachord 17
Tetrakaidecagon 102
Thetic 67

Thiel 120
Thureau Dangin 137, 225, 318
Tigi 83
Timbrel 374, 375, 376, 377, 378, 379, 380, 381 382
Toponyms 25
Tritone 36, 53, 93, 40, 73, 74
Tunbur 319
Tyre 369
Ud 319
Ugaritic 17, 136
Unfretted 61
Ur 18, 28, 75, 178, 186, 190, 223, 244, 246 251, 369, 385
Ur Nammu 372
Uruk 68, 69, 178, 185, 199, 235, 321, 369
Usiye 221
Vallois, H.-V. 117
Velars 15
Venus 186
Virolleau 117
Vitale, R. 48
Vivil, M. 85
Vullers 318
West, M.L. 17, 30, 120, 319, 364
Winkelhaken 117
Woolley, Sir L. 19, 28, 47, 348
Wulstan 118
Zalzal 58
Zancani Montuoro 364
Zincirli 339, 272
Zoomorphic 68, 283, 285
Zubaiba 233